Government
Publications

C. 2

Canada Parliament

Sessional Papers

SESSIONAL PAPERS

VOLUME 9

FIRST SESSION OF THE TWELFTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1911-12

VOLUME XLVI.

1091678

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LIST OF SESSIONAL PAPERS

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Printed for distribution and sessional papers.

CONTENTS OF VOLUME 1.

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1. Report of the Auditor General for the year ended 31st March, 1911. Volume 1, Parts A to P, and Vol. 2, Parts Q to Y. Presented 10th January, 1912, by Hon. Mr. White.

Printed for distribution and sessional papers.

CONTENTS OF VOLUME 2.

2. Public Accounts of Canada, for the fiscal year ending 31st March, 1911. Presented by Hon. Mr. White, November 20, 1911.. ..*Printed for distribution and sessional papers.*

3. Estimates for fiscal year ended 31st March, 1911. Presented 29th November, 1911, by Hon. Mr. White.. .. ..*Printed for distribution and sessional papers.*

3*a*. Estimates for the fiscal year ending 31st March, 1913. Presented 10th January, 1912, by Hon. Mr. White.. .. ..*Printed for both distribution and sessional papers.*

3*b*. Supplementary Estimates for the fiscal year ending 31st March, 1912. Presented 13th March, 1912, by Hon. Mr. White..*Printed for both distribution and sessional papers.*

4. Supplementary Estimates for the fiscal year ending 31st March, 1913. Presented by Hon. Mr. White, 26th March, 1912.. .. ..*Printed for distribution and sessional papers.*

5. Further Supplementary Estimates for fiscal year ending 31st March, 1912. Presented by Hon. Mr. White, 26th March, 1912.

Printed for distribution and sessional papers.

6. List of Shareholders in the Chartered Banks of the Dominion of Canada for year ended 31st December, 1911. Presented by Hon. Mr. White.

Printed for distribution and sessional papers.

CONTENTS OF VOLUME 3.

7. Report on dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of the Dominion of Canada for five years and upwards prior to 31st December, 1911.

Printed for distribution and sessional papers.

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8. Report of the Superintendent of Insurance for year ended, 1911. Presented by Hon. Mr. White, 20th November, 1911... .. .. ..*Printed for distribution and sessional papers.*

9. Abstract of Statements of Insurance Companies in Canada for the year ended 1911. Presented by Hon. Mr. White.. .. ..*Printed for distribution and sessional papers.*

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10. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part I.—Canadian Trade). Presented by Hon. Mr. Foster, 23rd February,
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10*a*. Report of the Department of Trade and Commerce for the year ended 31st March, 1911. (Part II.—Canadian Trade with (1) France, (2) Germany, (3) United Kingdom, and (4) United States). Presented by Hon. Mr. Foster, 10th January, 1912.
Printed for distribution and sessional papers.

10*b*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part III.—Canadian Trade). Presented by Hon. Mr. Foster, 25th March, 1912.. .. ..*Printed for distribution and sessional papers.*

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10*c*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part IV.—Miscellaneous Information). Presented by Hon. Mr. Foster, 7th February, 1912.. .. ..*Printed for distribution and sessional papers.*

10*d*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part V.—Grain Statistics, &c.) Presented by Hon. Mr. Foster.
Printed for distribution and sessional papers.

10*e*. Report of the Department of Trade and Commerce for the fiscal year ended 31st March, 1911. (Part VI.—Subsidized Steamship Services). Presented by Hon. Mr. Foster, 1st April, 1912.. .. ..*Printed for distribution and sessional papers.*

10*f*. Report of Trade and Commerce for fiscal year ended 31st March, 1911. (Part VII.—Trade of Foreign Countries, Treaties and Conventions). Presented by Hon. Mr. Foster.. .. ..*Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 7.

11. Report of the Department of Customs for the year ended 31st March, 1911. Presented by Hon. Mr. Roche, 10th January, 1912.
Printed for distribution and sessional papers.

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12. Reports, Returns and Statistics of the Inland Revenue for the Dominion of Canada, for the year ended 31st March, 1911. (Excise, Part I). Presented by Hon. Mr. Nantel, 30th November, 1911.. .. ..*Printed for distribution and sessional papers.*

13. Report Department of Inland Revenue. (Part II.—Inspection of Weights and Measures, Gas and Electric Light). Presented by Hon. Mr. Nantel, 30th November, 1911.
Printed for distribution and sessional papers.

14. Reports, Returns and Statistics of the Inland Revenues for the Dominion of Canada, for the year ended 31st March, 1911. Part III.—Adulteration of Food. Presented by Hon. Mr. Nantel, 11th January, 1912.
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15. Report of the Minister of Agriculture for the Dominion of Canada, for the year ended 31st March, 1911. Presented by Hon. Mr. Burrell, 1st December, 1911.
Printed for distribution and sessional papers.

15*a*. Report of the Dairy and Cold Storage Commissioner for the fiscal year ending 1911. Presented by Hon. Mr. Burrell... .. ..*Printed for distribution and sessional papers.*

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15*b*. Report of the Veterinary Director General and Live Stock Commissioner, J. G. Rutherford, for the year ending 1910. Presented by Hon. Mr. Burrell.
Printed for distribution and sessional papers.

15*c*. Report of the Veterinary Director General and Live Stock Commissioner for the year ending 31st March, 1911. Presented by Hon. Mr. Burrell, 1st December, 1911.
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16. Report of the Director and Officers of the Experimental Farms for year ending 31st March, 1911. Presented by Hon. Mr. Burrell, 1st December, 1911.
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17. Criminal Statistics for the year ended 1910. Presented by Hon. Mr. Doherty.
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18. Return of the Twelfth General Election for the House of Commons, 1911.
Printed for distribution and sessional papers.

18*a*. Return of By-Elections (Twelfth Parliament) for the House of Commons, 1911.
Printed for distribution and sessional papers.

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19. Report of the Minister of Public Works, for the fiscal period ended 31st March, 1911. Presented by Hon. Mr. Monk, 1st December, 1911. Vols. I and II.
Printed for distribution and sessional papers.

CONTENTS OF VOLUME 13.

20. Report of the Department of Railways and Canals for fiscal year, 1st April, 1910 to 31st March, 1911. Presented by Hon. Mr. Cochrane, 12th January, 1912.
Printed for distribution and sessional papers.

20*a*. Canal Statistics for season of navigation of 1911.
Printed for distribution and sessional papers.

20*b*. Railway Statistics of the Dominion of Canada for the year ended 30th June, 1911. Presented by Hon. Mr. Cochrane, 1st February, 1912.
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20*c*. Sixth Report of the Board of Railway Commissioners for Canada, for the year ending 31st March, 1911. Presented by Hon. Mr. Cochrane, 29th March, 1912.
Printed for distribution and sessional papers.

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20*d*. Telephone Statistics of the Dominion of Canada, for the year ended 30th June, 1911. Presented by Hon. Mr. Cochrane, 8th March, 1912.
Printed for distribution and sessional papers.

20*e*. Express Statistics of the Dominion of Canada for the year ended 30th June, 1911. Presented by Hon. Mr. Cochrane, 8th March, 1912.
Printed for distribution and sessional papers.

21. Report of the Department of Marine and Fisheries, for the year ending 31st December, 1911. (Marine). Presented by Hon. Mr. Hazen, 22nd January, 1912.
Printed for distribution and sessional papers.

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21*a*. Tenth Report of the Geographic Board of Canada, for year ending 30th June, 1911. Also Appendix Handbook of Indians of Canada.
Printed for distribution and sessional papers.

21b. List of Shipping issued by Department of Marine and Fisheries. Vessels in registry books of Canada, for year 1911. Presented by Hon. Mr. Hazen.
Printed for distribution and sessional papers.

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22. Report of the Department of Marine and Fisheries, 1911. (Fisheries). Presented by Hon. Mr. Hazen, 12th January, 1912.
Printed for distribution and sessional papers.

23. Supplement to the Forty-fourth Annual Report of the Department of Marine and Fisheries for the year ending 31st December, 1910—Marine—Report of the Harbour Commissioners for Montreal, Quebec, &c. Presented by Hon. Mr. Hazen, 22nd January, 1912.. .. ..*Printed for distribution and sessional papers.*

23*a*. Report of the Chairman of the Board of Steamboat Inspection for the fiscal year 1911. Presented by Hon. Mr. Hazen, 22nd January, 1912.
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24. Report of the Postmaster General for the year ended 31st March, 1911. Presented by Hon. Mr. Pelletier, 24th November, 1911.
Printed for distribution and sessional papers.

25. Report of the Department of the Interior, for the fiscal year ending 31st March, 1911. Presented by Hon. Mr. Rogers, 12th January, 1912.
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25*a*. Report of Chief Astronomer, Department of the Interior, for year ending 31st March, 1910. Vol. II. and IIII.
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25*a*. Report of Chief Astronomer, Department of the Interior, for year ending 31st March, 1911.. .. ..*Printed for distribution and sessional papers.*

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25*b*. Annual Report of the Topographical Surveys Branch, Department of the Interior, 1910-11.. .. ..*Printed for distribution and sessional papers.*

25*d*. Report of progress of stream measurements for the calendar year 1910.
Printed for distribution and sessional papers.

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26. Summary Report of the Geological Survey Branch, Department of Mines, for calendar year 1911.. .. ..*Printed for distribution and sessional papers.*

26a. Summary Report of the Mines Branch Department of Mines, for the calendar year 1910. Presented by Hon. Mr. Nantel, 11th January, 1912.
Printed for distribution and sessional papers.

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27. Report of the Department of Indian Affairs for the year ended 31st March, 1911. Presented by Hon. Mr. Rogers, 11th January, 1912.
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28. Report of the Northwest Mounted Police, for year 1911. Presented by Rt. Hon. Mr. Borden, 10th January, 1912... .. .. ..*Printed for distribution and sessional papers.*

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29. Report of the Secretary of State of Canada for year ended 31st March, 1911. Presented by Hon. Mr. Roche, 30th November, 1911
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29*b*. Report of the Secretary of State for External Affairs for the fiscal year ended 31st March, 1911. Presented by Hon. Mr. Roche, 11th January, 1912.
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30. Civil Service List of Canada, 1911. Presented by Hon. Mr. Roche, 30th March, 1912.
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31. Report of the Civil Service Commission of Canada for the period from 1st September to 31st August, 1911. Presented by Hon. Mr. Roche, 12th January, 1912.
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32. Annual Report of the Department of Public Printing and Stationery for the year ended 31st March, 1911. Presented by Hon. Mr. Roche, 6th March, 1912.
Printed for distribution and sessional papers.

33. Report of the Joint Librarians of Parliament for the year 1911. Presented by Hon. The Speaker, 16th November, 1911... .. ..*Printed for sessional papers.*

33*a*. Report of the Joint Committee Library of Parliament for year 1911. Presented by Hon. The Speaker, 18th March, 1912.. .. ..*Printed for sessional papers.*

34. Report of the Minister of Justice as to Penitentiaries in Canada for fiscal year ended 31st March, 1911. Presented by Hon. Mr. Doherty, 10th January, 1912.
Printed for distribution and sessional papers.

35. Report of the Militia Council for the fiscal year ending 31st March, 1911. Presented by Hon. Mr. Hughes, 8th February, 1912.
Printed for distribution and sessional papers.

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36. Report of the Department of Labour for year ending 31st March, 1911. Presented by Hon. Mr. Crothers, 12th January, 1912.
Printed for distribution and sessional papers.

36*a*. Fourth Report of Proceedings under the Industrial Disputes Investigation Act, 1907. Presented by Hon. Mr. Crothers, 12th January, 1912.
Printed for distribution and sessional papers.

36*c*. Report of proceedings under the Combines Investigation Act, for the year ended 31st March, 1911. Presented by Hon. Mr. Crothers, 10th January, 1912.
Printed for distribution and sessional papers

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37. Report of the Transcontinental Railway Commission for year ending 31st March, 1911. Presented by Hon. Mr. Cochrane.. ..*Presented for distribution and sessional papers.*

38. Report of the Department of the Naval Service, for the fiscal year ending 31st March, 1911. Presented 10th January, 1912, by Hon. Mr. Hazen.

Printed for distribution and sessional papers.

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39. Statement of Governor General's Warrants issued since the last Session of Parliament on account of 1911-12. Presented 20th November, 1911, by Hon. Mr. White.

Not printed.

40. Copy of Order in Council, dated 7th August, 1911, *re* "Extra Pay of Officers, and Men serving in the Naval Service of Canada."

Copy of Order in Council, dated 10th August, 1911, *re* "Payment to Ministers of Religion of various denominations for religious ministration to Officers and Men belonging to the Naval Foces of Canada."

Copy of Order in Council, dated 18th October, 1911, *re* "Regulations for the entry of Naval Cadets for the Naval Service."

Copy of Order in Council, dated 25th October, 1911, *re* "Regulations for Courts Martial." Presented 20th November, 1911, by Hon. Mr. Hazen.. .. .. ..*Not printed.*

40*a*. Copy of Order in Council, dated 7th August, 1911, *re* "Consolidated Allowance in lieu of Lodging, Provisions, Fuel, Light, &c., for the Naval Service of Canada." Presented 29th November, 1911 by Hon. Mr. Hazen.. .. ..*Not printed.*

40*b*. Copy of Order in Council, No. P.C. 2843, dated 16th December, 1911—"Regulations *re* Distinguishing Flag and Pendants to be flown by the Ships of the Royal Canadian Navy." Presented 1st January, 1912, by Hon. Mr. Hazen.. .. ..*Not printed.*

40*c*. Copy of Order in Council, dated 27th January, 1912, *re* Gratuities to Widows of Seamen, killed on duty. Presented 8th February, by Hon. Mr. Hazen..*Not printed.*

40*d*. Return to an Address to His Royal Highness the Governor General of the 29th November, 1911, for a copy of all Correspondence between His Majesty's Government in Canada and His Majesty's Government in England, subsequent to the last Imperial Conference, concerning the Naval Service of Canada, or in any way connected with it. Presented 15th February, 1912.—*Mr. Lemieux.*

Printed for distribution and sessional papers.

40*e*. Copy of Order in Council P.C., 16/168, dated 27th January, 1912, *re* Daily Rates of Pay and allowances for Bandsmen in the Royal Canadian Navy.—(*Senate*).

Not printed.

40*f*. Copy of Order in Council No. P.C. 186, 30th January, 1912, *re* transfer of certain Naval Reserve Lands by the Imperial Government to the Dominion Government and the reservation of the same for Naval and Military purposes.—(*Senate.*)..*Not printed.*

40*g*. Copy of Order in Council P.C., 16/168 dated 27th January, 1912, *re* Daily Rates of Pay and Allowances for Bandsmen in the Royal Canadian Navy. Presented 27 February, 1912, by Hon. Mr. Hazen.. .. ..*Not printed.*

40*h*. Copy of Order in Council No. P.C. 196, dated 30th January, 1912, *re* transfer of certain Naval Reserve Lands by the Imperial Government to the Dominion Government and the reservation of the same for Naval and Military purposes. Presented 27th February, 1912, by Hon. Mr. Hazen.. .. ..*Not printed.*

40*i*. Return to an Order of the House of the 5th February, 1912, for a copy of the memorandum of Admiral Kingsmill, dated 9th October, 1911, referred to by the Minister of Marine and Fisheries in answer to a question put to him on the 15th January, 1912. Presented, 11th March, 1912, by Hon. Mr. Hazen.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

41. Statement of Superannuation and Retiring Allowances in the Civil Service during the year ended 31st December, 1911, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired; also, whether vacancy filled by promotion or by new appointment, and salary of any new appointee. Presented 20th November, 1911, by Hon. Mr. White.. .. ..*Not printed.*

42. Statement of Expenditure on account of "Miscellaneous Unforeseen Expenses," from the 1st April, 1911, to the 16th November, 1911, in accordance with the Appropriation Act of 1911. Presented 20th November, 1911, by Hon. Mr. White.. .. ..*Not printed.*

43. Civil Service Insurance Act. Statement concerning. Presented 20th November, 1912. *Not printed.*

44. Return, in pursuance of Section 16 of the Government Annuities Act, 1908, containing Statement of the business done during the fiscal year ending 31st March, 1911. Presented 21st November, 1911, by Hon. Mr. Foster.. .. ..*Not printed.*

44*a*. Return to an Order of the Senate, dated 8th February, showing:—1. The number of persons who have been appointed to the position of lecturers upon the subject of Annuities under chapter 5, 7-8 Edward VII, "An Act to authorize the issue of Government Annuities for Old Age and Amendments thereto." 2. The names of such lecturers, the amount of salary paid to each, of travelling expenses or payments for any other service rendered in connection therewith. 3. The number of clerks and others employed in connection with the organization and putting into force the provisions of the Annuities Act; and the salaries and wages paid to each one so employed. 4. The total expense incurred in the organization of Annuities Branch of the Public Service, to the end of December, 1911.—(*Senate*).. .. ..*Not printed.*

44*b*. Return to an Order of the Senate, dated 6th February, 1912, showing:—1. The number of annuitants and parties having made payments on account of purchase of same up to the 1st February, 1912. 2. The amount of money paid in to the same date. 3. The number of contracts for annuities entered into in each month from the 1st January, 1911, to the 1st February, 1912. 4. The number of letters received by the officials in charge of the Annuities Branch during same period?—(*The Senate.*).. ..*Not printed.*

45. Report of the proceedings for the preceding year of the Commisioners of Internal Economy of the House of Commons, pursuant to Rule 9. Presented 24th November, 1911, by Hon. The Speaker.. .. ..*Not printed.*

46. Copies of General Orders promulgated to the Militia for the period between 1st November, 1910, and 2nd November, 1911, inclusive. Presented 24th November, 1911, by Hon. Mr. Hughes.. .. ..*Not printed.*

47. Report of the Commission of Conservation on the Water-Powers of Canada. Presented 28th November, 1911, by Hon. Mr. Burrell.. .. ..*Not printed.*

48. Return respecting Trade Unions under Chap. 125, R.S.C., 1906. Presented 30th November, 1911, by Hon. Mr. Roche.. .. ..*Not printed.*

49. Detailed statement of all bonds or securities registered in the Department of the Secretary of State of Canada, since last return (29th November, 1910), submitted to the Parliament of Canada, under Section 32 of Chap. 19, R.S.C., 1906. Presented 30th November, 1911.—*Hon. Mr. Roche*.. .. ..*Not printed.*

50. Statement of Receipts and Expenditures of the National Battlefields Commission to 31st March, 1911. Presented 30th November, 1911.—*Hon. Mr. White.*

Printed for sessional papers.

CONTENTS OF VOLUME 24—*Continued.*

51. Statements of Receipts and Expenditures of the Ottawa Improvement Commission to 31st March, 1911. Presented 30th November, 1911.—*Hon. Mr. White*... ..*Not printed.*

51*a*. Return respecting work done by Ottawa Improvement Commission for beautifying of Ottawa.—(*Sir Wilfrid Laurier.*) Presented 22nd February, 1912.
Printed for distribution and sessional papers.

51*b*. Report of the Ottawa Improvement Commission for the fiscal year ending 31st March, 1911. Presented by Hon. Mr. White, 18th March, 1912.. .. ..*Not printed.*

52. Statement of the affairs of the Royal Society of Canada, for the year ended 30th April, 1911. Presented 30th November, 1911.—*Hon. Mr. White*.. .. ..*Not printed.*

53. Regulations under "The Destructive Insect and Pest Act."—(*For distribution*). Presented 1st December, 1911.—*Hon. Mr. Burrell*
Printed for distribution and sessional papers.

54. Return of Orders in Council passed regulations and forms prescribed between the 1st October, 1910, and 30th September, 1911, in accordance with the provisions of Section 57 of the Irrigation Act, Chapter 61 Revised Statutes of Canada, 1906. Presented 1st December, 1911.—*Hon. Mr. Foster*.. .. ..*Not printed.*

55. Return of Orders in Council passed between the 1st of October, 1910, and the 31st July, 1911, in accordance with the provisions of Section 5 of the Dominion Lands Survey Act, Chapter 21, 7-8 Edward VII. Presented 1st December, 1911.—*Hon. Mr. Foster.*
Not printed.

55*a*. Return of Orders in Council which have been published in the *Canada Gazette*, between 1st October, 1910, and 31st July, 1911, in accordance with the provisions of Section 77 of the Dominion Lands Act, Chapter 20 of the Statutes of Canada, 1908. Presented 1st December, 1911.—*Hon. Mr. Foster*.. .. ..*Not printed.*

55*b*. Return of Orders in Council which have been published in the *Canada Gazette* and in the British Columbia *Gazette*, between 1st October, 1910, and 31st July, 1911, in accordance with provisions of Sub-section (*d*) of Section 38 of the regulations for the survey, administration, disposal and management of Dominion Lands within the 40-mile Railway Belt in the Province of British Columbia. Presented 1st December, 1911.—*Hon. Mr. Foster*.. .. ..*Not printed.*

55*c*. Supplementary Return of Certain Orders in Council in accordance with the provisions of Section 77 of the Dominion Lands Act, Chapter 20 of the Statutes of Canada, 1908.—(*Senate.*).. .. ..*Not printed.*

55*d*. Supplementary Return of Orders in Council which have been published in the *Canada Gazette*, between 1st August, 1911, and 15th November, 1911, in accordance with the provisions of Section 77 of the Dominion Lands Act, Chapter 20 of the Statutes of Canada, 1908. Presented 7th February, 1912.. .. ..*Not printed.*

56. Return of Orders in Council passed between the 1st October, 1910, and the 30th September, 1911, in accordance with the provisions of the Forest Reserve Act, Section 19, of Chapter 10, 1-2 George V. Presented 1st December, 1911.—*Hon. Mr. Foster.*
Not printed.

56*a*. Return of Orders in Council passed between the 1st Oceober, 1910, and the 30th September, 1911, in accordance with the provisions of the Rocky Mountain Park Act, Section 5 of Chapter 60, Revised Statutes of Canada. Presented 1st December, 1911.—*Hon. Mr. Foster*.. .. ..*Not printed.*

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57. Return (in so far as the Department of the Interior is concerned) of Copies of all Orders in Council, plans, papers, and correspondence which are required to be presented to the House of Commons, under a Resolution passed on 20th February, 1882, since the date of the last return, under such Resolution. Presented 5th December, 1911.—*Hon. Mr. Rogers*.. .. ..*Not printed.*

58. Statement of Expenditure as bounty to deep-sea fishermen for the year 1910-11, pursuant to Chapter 46 of the Revised Statutes of Canada, 1906, intituled: "An Act to encourage the development of the Sea Fisheries and the building of Fishing Vessels." Presented 5th December, 1911.—*Hon. Mr. Hazen*.. .. ..*Not printed.*

59. Communication from the Right Honourable Baron Strathcona and Mount Royal, G.C.M.G., &c., on the subject of cheaper transmission of press cablegrams, &c.—(*Sessional papers*). Presented 7th December, 1911.—*Hon. Mr. Borden.*

Printed for sessional papers.

60. Report of the Commissioner, Dominion Police Force, for the year 1911. Presented 10th January, 1912.—*Hon. Mr. Doherty*.. .. ..*Not printed.*

61. Return to an Order of the House of the 27th February, 1911, showing all Statutes, regulations, reports and proceedings in the courts of the United States or in the counts of any of the respective States, and all other documents, papers and information of every kind touching or concerning the methods and operations of the meat trust and other trusts and combines in the United States, and touching the results both to the producer and to the consumer of such methods and operations, including all departmental proceedings and reports and other proceedings and reports of the Government of the United States or of any department thereof with respect to the matters aforesaid, and in general all available information in respect to the operations of such trusts and combines in the United States. Presented, 10th January, 1912.—*Mr. Meighen*... .. ..*Printed for sessional papers.*

62. Return to an Order of the House of the 29th November, 1911, for a copy of all papers, letters, telegrams, and other documents in connection with the acceptance of a tender of the McDiarmid Company, Limited, for the construction of the Moosejaw public building, and the cessation of all construction thereof. Presented 10th January, 1912.—*Mr. Knowles*.. .. ..*Not printed.*

62*a*. Return to an Order of the House of the 29th November, 1911, for a copy of all papers, telegrams, reports and other documents in connection with the proposed erection of a public building in the town of Aurora. Presented 10th January, 1912.—*Mr. Armstrong (York)*.. .. ..*Not printed.*

63. Return to an Order of the House of the 30th December, 1911, for a detailed statement of the expenses incurred and paid for the Exposition at Paris in 1900, under the title of payments of the Colonial Committee for space, &c., $87,000 (*See* report of the Auditor General, 1899,D—15). Presented 10th January, 1912.—*Mr. Paquet.*

Not printed.

64. Return to an Order of the House of the 6th December, 1911, showing the expenditure for printing pamphlets, circulars and literature with a view to promoting immigration to Canada during each of the years from and including 1900 to 1911; and the expenditure in the interests of each province for printing pamphlets, circulars and literature entirely devoted to each province during each of the years from and including the year 1900 to 1911; and also, whether the printing was done by contract or under what arrangement and the rate charged. Presented 10th January, 1912.—*Mr. Sutherland*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

64*a*. Return to an Address to His Royal Highness the Governor General of the 30th November, 1911, for a copy of all Orders in Council and other papers relating to the appointment of Arthur Hawkes as a special commissioner in the immigration branch of the Interior Department. Presented 10th January, 1912.—*Mr. Oliver*... .. ..*Not printed.*

65. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 21st December, 1911, appointing Messieurs Alfred Bishop Morine, Guillaume Narcise Ducharme and Richard Stuart Lake, a Royal Commission to investigate and inquire into the operation of the various departments of the government, with a view to securing increased efficiency and a more thorough organization and co-ordination in the said departments. Presented 10th January, 1912.—*Rt. Hon. Mr. Borden*.. .. ..*Not printed.*

65. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 29th January, 1912, relative to the appointment of two commissioners, namely: Mr. F. C. Gutelius, C.E., of Montreal, and Mr. George Lynch Staunton, K.C., of Hamilton, to investigate all matters bearing on the actual construction of the National Transcontinental Railway between Moncton and Winnipeg. Presented 6th February, 1912.—*Hon. Mr. Cochrane.*
Not printed.

65*b*. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 12th February, 1912, appointing the Hon. Sir William Ralph Meredith, Chief Justice of the Common Pleas Division of the High Court of Justice of Ontario, a commissioner to inquire into all the circumstances connected with the organization, management, operation and failure of the Farmer's Bank of Canada. Presented 13th February, 1912.—*Hon. Mr. White.*
Not printed.

66. Return to an Order of the House of the 30th November, 1911, for a copy of all papers, telegrams, reports and other documents in connection with the interpretation and enforcement of the duties on lumber, together with a copy of all instructions or other communications addressed by circular or otherwise to Collectors of Customs, and a copy of any minute or minutes or rulings or decisions of the Board of Customs during the year 1911. Presented 10th January, 1912.—*Mr. Knowles*... ..*Not printed.*

67. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 21st November, 1911, providing for the transfer of the Government Annuities Branch from the Department of Trade and Commerce to the Post Office Department. Presented 10th January, 1912.—*Hon. Mr. Pelletier*... .. ..*Not printed.*

68. Return relating to lands sold by the Canadian Pacific Railway Company during the year which ended the 1st October, 1911. Presented 11th January, 1912.—*Hon. Mr. Rogers*.. .. ..*Not printed.*

68*a*. Return under the provisions of Section 8 of 49 Victoria, Chapter 9, being a list of lands in the "Irrigation Block" of the Canadian Pacific Railway Company in the province of Alberta, sold by that company during the year which ended on the 1st October, 1911. Presented 13th March, 1912.. .. ..*Not printed.*

68*b*. Return under the provisions of Section 8 of 49 Victoria, Chapter 9, being a list of lands in the province of Alberta, sold by the Canadian Pacific Railway Company during the year which ended on the 1st October, 1911. Presented 13th March, 1912.
Not printed.

CONTENTS OF VOLUME 24—*Continued.*

69. Return to an Order of the House of the 4th December, 1911, for a copy of all agreements between the Minister of Railways of Canada and any of the Brotherhood Unions or organizations of the employees of the Interclonial Railway since 1898. Presented 15th January, 1912.—*Mr. Maclean (Halifax)*.. .. ..*Not printed.*

70. Return to an Order of the House of the 29th November, 1911, showing:—1. What persons were appointed to positions in the several departments between the date of the dissolution of the last parliament and the 31st September last. 2. On whose recommendation such appointments were made, and the salary attached to each position. 3. What appointments were made in the several departments between the 21st day of September last and the date of the resignation of the Laurier Ministry, on whose recommendation in each case and the salary of each appointee. Presented 15th January, 1912.—*Mr. Edwards*.. .. ..*Not printed.*

70*a*. Return to an Order of the House of the 22nd January, 1912, for a Return showing how many appointments have been made in the Department of Public Works and Post Office since the 7th day of October, 1911, in the inside service, and in the outside service respectively. Presented 12th February, 1912.—*Mr. Kyte*.. .. .. ..*Not printed.*

71. Return to an Address to His Royal Highness the Governor General of the 30th November, 1911, for a copy of all documents, &c., necessary to bring up to date the statement regarding the matters covered by Sessional Paper 109 of the Session of 1910-11 in reference to Canadian-Australain Trade.—*Mr. Ames.*
Printed for distribution and sessional papers.

71*a*. Return to an Order of the House of the 10th January, 1912, for a copy of all papers and correspondence relating to the negotiations that have been opened by the government for improved trade arrangements with the British West Indies and British Guiana. Presented 26th January, 1912.—*Mr. Murphy.*
Printed for distribution and sessional papers.

72. Return to an Address to His Royal Highness the Governor General of the 29th November, 1911, for a copy of all correspondence consisting of letters or telegrams, between the Salisbury and Harvey Railway Company or any officer thereof or any person, and the Minister of Railways or any other member of the government or any other person, and the Minister of Railways and Canals, relating to the re-opening of that portion of the railway of the said company between Hillsborough and Albert, and the supplying of rails and other materials for the purpose of repairing and improving the same, and also, of any Orders in Council, agreements and other documents relating thereto. Presented 15th January, 1912.—*Mr. Pugsley*.. .. .. ..*Not printed.*

72*a*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1911, for a copy of all papers, correspondence and Orders in Council in connection with the awarding of the contract for the building of the Hudson Bay Railway, and of all orders suspending work on the same. Presented 15th January, 1912.—*Mr. Neely*.. .. ..*Not printed.*

72*b*. Return to an Order of the House of the 29th November, 1911, for a statement showing the amount of money paid by the Dominion Government to each of the railways in the provinces of Manitoba, Saskatchewan, Alberta, British Columbia and in the Northwest Territories by way of subsidies, and adding thereto the value of lands given as subsidies on the basis of one dollar per acre. Presented 15th January, 1912.—*Mr. McCraney*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

72*c*. Return to an Address to His Royal Highness the Governor General 30th November, 1911, for a copy of all Orders in Council, petitions, telegrams, letters, agreements, correspondence and all other documents generally in connection with the proposed branch line or lines of railway to connect Montreal with the National Transcontinental Railway. Presented 15th January, 1912.—*Mr. Lapointe (Montreal)*
Not printed.

72*d*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1911, for a copy of all papers, correspondence and Orders in Council in connection with the awarding of the contract for the building of the Transcontinental Railway Station at Quebec, and all orders suspending work on the same. Presented 15th January, 1912.—*Sir Wilfrid Laurier*.. .. ..*Not printed.*

72*e*. Statement of work done on the National Transcontinental Railway—Eastern Division —to 31st December, 1911, and estimate of cost of completion. Presented 16th February, 1912—*Hon. Mr. Cochrane*.. .. ..*Not printed.*

72*f*. Return to an Order of the House of the 5th February, 1912, for a copy of all documents and of all the correspondence exchanged between A. E. Doucet, district engineer, on district B of the Transcontinental Railway, and of all other persons, relating to the selection of sites for railway stations in the parishes of St. Damien and St. Cajetan d'Armagh, in the county of Bellechasse. Presented, 18th March, 1912.—*Hon. Mr. Cochrane*.. .. ..*Not printed.*

72*g*. Return to an Address to His Royal Highness the Governor General of the 31st January, 1912, for a copy of all minutes of proceedings, records, orders, instructions or other writings made and had, or given or authorized to be made, had or given by the Board of National Transcontinental Railway Commissioners, from the date of the appointment of Mr. R. W. Leonard, as a member of the said Board and chairman thereof, to the present date; also of all letters, telegrams, instructions or other documents made or had or passed, since the said appointment, by and between the Minister of Railways and Canals, or other members of the government, or by any person by authority of the government, and the said Chairman of the Board of National Transcontinental Railway Commissioners, or the Secretary of said Board; also of any Orders in Council relating to the appointment of an asistant chairman or an assistant to the chairman of said Board, together with a copy of all letters, papers, instructions or documents relating thereto; as well as a statement of all payments of monies in the way of salaries or compensation made to the incumbent of the office of assistant chairman or assistant to the chairman of said Board, and of all papers, letters or instructions made, written or received by the said minister or the said chairman, relating to or in any way connected with the payment or authorization of said salary or compensation. Presented 20th March, 1912.—*Hon. Mr. Cochrane.*
Not printed.

72*h*. Interim Report of the Commissioners of the Transcontinental Railway, being for the nine months ended 31st December, 1911. Presented 22nd March, 1912, by Hon. Mr. Cochrane.. .. ..*Not printed.*

73. Return to an Order of the House of Commons of the 29th November, 1911 (so far as the Department of Agriculture is concerned), for a copy of all letters, telegrams, memorials, resolutions and other documents in the hands of the government, or any department thereof, in connection with the taking of the census in the city of Regina, and all complaints and protests in connection with the same; also, all departmental instructions, memoranda, reports and other documents. Presented 15th January, 1912.—*Mr. Knowles*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

74. Return showing:—1. The number of messengers in the House of Commons during the last session of the last parliament. 2. The names of the said messengers and the dates of their respective appointments. 3. The number of these messengers who have been relieved from service, their names, at whose request, for what reasons and on what date. 4. By whom have they been replaced. 5. Where are the residences of the new messengers and by whom were they recommended. 6. How many French Canadians hve been dismissed nd by whom have they been replaced. Presented 17th January, 1912.—*Hon. Mr. Speaker*.. .. ..*Not printed.*

75. Ordinances of the Yukon Territory passed by the Yukon Council in the year 1911. Presented 17th January, 1912, by Hon. Mr. Roche.. .. ..*Not printed.*

76. Return to an Address to His Royal Highness the Governor General of the 4th December, 1911, for a copy of all correspondence with and from the Secretary of State for the Colonies, or other minister of the Imperial government, in relation to the passage of legislation providing for uniformity in naturalization throughout the empire since the sittings of the Imperial Conference in June last. Presented 19th January, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

77. Return to an Address to His Royal Highness the Governor General of the 7th December, 1910, for a copy of the Report of the Imperial Defence Committee of the Privy Council in England concerning the defence of the empire, communicated to the Canadian Government, and of the despatches and correspondence exchanged between the Imperial and the Canadian Governments relating to the said report. Presented 22nd January, 1912.—*Hon. Mr. Monk*.. .. ..*Not printed.*

78. Return called for by Section 88 of Chapter 62, R.S.C., requiring that the Minister of the Interior shall lay before parliament, each year, a Return of liquor brought from any place out of Canada into the Territories, by special permission in writing of the Commissioner of the Northwest Territories. Presented 22nd January, 1912.—*Hon. Mr. Rogers*.. .. ..*Not printed.*

79. Return to an Order of the House of the 17th January, 1912, for a copy of all letters, resolutions, telegrams and other communications or memorials in connection with the removal from the Moosejaw Land Office, of John Rutherford, lands agent, and the appointment (either temporary or permanent) of a new incumbent of the office. Presented 23rd January, 1912.—*Mr. Knowles*.. .. ..*Not printed.*

79*a*. Return to an Order of the House of the 15th January, 1912, for a copy of all letters, telegrams, reports, papers and correspondence, petitions or memoranda presented to the Government, or the Department of Public Works, or any official thereof, in connection with the dismissal of Captain Peter Decoste from the dredge *Cape Breton*. Presented 26th January, 1912.—*Mr. Chisholm (Antigonish)*.. .. ..*Not printed.*

79*b*. Return to an Order of the House of the 17th January, 1912, for a copy of all petitions, letters, telegrams and other documents in the possession of the Department of Public Works relating to the dismissal of Roderick Sutherland, caretaker of the public building at Canso, Nova Scotia. Presented 26th January, 1912.—*Mr. Sinclair.*
Not printed.

79*c*. Return to an Order of the House of the 17th January, 1912, for a copy of all letters. reports or other documents, relating to the removal from office of Mr. Eugene Baldwin, late of the Customs Service at Coaticook, Quebec. Presented 30th January, 1912. —*Mr. McLean (Halifax)*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*d*. Return to an Order of the House of the 5th February, 1912, for a copy of all documents, letters, petitions, reports, recommendations, declarations, proceedings of inquiry and all other documents relating to the dismissal of Médric Picotte as messenger of the House of Commons and the appointment of his successor, Henry Coffin. Presented 7th February, 1912.—*Mr. Seguin*.. .. ..*Not printed.*

79*e*. Return to an Address to His Royal Highness the Governor General of the 5th February, 1912, for a copy of all letters, complaints, charges, telegrams, petitions, memorials, Orders in Council or other documents in the possession or under control of the government, relating to the dismissal of William A. Hattie, from the position of Preventive Officer at Mulgrave, Nova Scotia, and relating to the appointment of a man to fill the vacancy caused by such dismissal. Presented 12th February, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*f*. Return to an Order of the House of the 31st January, 1912, for a copy of all letters, complaints, telegrams, evidence, reports, or other papers, relating to charges against Robert Leithead, James Blair, Duncan Gillis and Calvin McKenzie, all employees of the Intercolonial Railway in the county of Pictou, for partizanship and to the investigation of said charges. Presented 14th February, 1912.—*Mr. Macdonald*..*Not printed.*

79*g*. Return to an Order of the House of the 24th January, for a copy of all letters, telegrams and all other documents, and of all complaints and charges, in any way relating to the suspension of Joseph Venoit, checker on the Intercolonial Railway at Pictou, Nova Scotia. Presented 14th February, 1912.—*Mr. Macdonald*...*Not printed.*

79*h*. Return to an Order of the House of the 7th February, 1912, for a copy of all charges, letters, and other documents relating to complaints against John Connolly, of New Glasgow, coal inspector, for partizanship, the evidence taken in the investigation before H. P. Duchemin, and all other papers in connection therewith. Presented 14th February, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

79*i*. Return to an Order of the House of the 5th February, 1912, for a copy of all letters, telegrams, petitions, complaints, charges or other documents in the possession of the Department of Customs relating to the dismissal of S. M. Ferguson, Preventive Officer at Oyster Ponds, county of Guysborough, Nova Scotia, and relating to an appointment of a man to fill the vacancy cause by such dismissal. Presented 19th February, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*j*. Return to an Order of the House of the 22nd January, 1912, for a copy of all correspondence, letters, telegrams or other documents relating to the dismissal of P. J. Veniot, Collector of Custotms at Bathurst, New Brunswick, and the appointment either permanent or temporary of his successor. Presented 19th February, 1912.—*Mr. Turgeon*.. .. ..*Not printed.*

79*k*. Return to an Order of the House of the 12th February, 1912, for a copy of all letters, telegrams, petitions, charges, complaints, reports and other documents relating to the dismissal of Luke Day, (of the Department of Public Works), of North Sydney, Cape Breton. Presented 19th February, 1912.—*Mr. McKenzie*.. .. .. ..*Not printed.*

79*l*. Return to an Order of the House of the 5th February, 1912, for a copy of all correspondence addressed to the Minister of Public Works in connection with the dismissal of George T. Harbour, superintendent of the work at the deep water wharf at Gaspé. Presented 22nd February, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*m*. Return to an Order of the House of the 12th February, 1912, for a copy of all letters, telegrams, petitions, charges, complaints, reports and other documents relating to the dismissal of D. McDonald, Esquire, M.D. (of the Department of Indian Affairs), of Baddeck, Cape Breton. Presented 26th February, 1912.—*Mr. McKenzie..Not printed.*

79*n*. Return to an Order of the House of the 19th February, 1912, for a copy of all correspondence, petitions, requests, complaints, or other documents in the possession of the government, or any department thereof, relating to the dismissal of George Cavanagh from the Customs Service at New Glasgow, Nova Scotia. Presented 27th February, 1912.—*Mr. Macdonald.. .. ..Not printed.*

79*o*. Return to an Order of the House of the 14th February, 1912, for a copy of all charges, letters and documents of every kind with respect to the dismissal of John W. Bohan from the position of Preventive Customs Officer at Bath, in the county of Carleton, province of New Brunswick; also, a copy of all references for an investigation on any charges, if any, and a copy of all evidence adduced thereat, together with the recommendation of the official making such investigations. Presented 27th February, 1912.—*Mr. Carvell.. .. ..Not printed.*

79*p*. Return to an Order of the House of the 19th February, 1912, for a copy of all papers, letters, documents, &c., relating to the dismisasl of Hector Hamel, assistant appraiser at the Montreal Custom House; and also, relating to his subsequent appointment as preventive officer. Presented 27th February, 1912.—*Mr. Lemieux. Not printed.*

79*q*. Return to an Address to His Royal Highness the Governor General of the 12th February, 1912, for a copy of all letters, telegrams, petitions, charges, complaints, Orders in Council, reports or other documents in the possession of the Department of Customs relating to the dismissal of Lyman C. Smith from the Customs Collectorship at Oshawa, Ontario. Presented 27th February, 1912.—*Mr. Sinclair.. .. ..Not printed.*

79*r*. Return to an Order of the House of the 5th February, 1912, for a copy of the petitions forwarded to the Minister of Public Works praying for the dismissal of Michael Campeau, and the appointment of Honoré Paquette, as caretaker of the Postal Station in Laurier Ward, Montreal. Presented 1st March, 1912.—*Mr. Lemieux.. ..Not printed.*

79*s*. Return to an Order of the House of the 19th February, 1912, for a copy of all documents, letters, telegrams, requests, reports, recommendations and correspondence, regarding the removal or dismissal of Alexander R. McAdam, Fishery Officer for the county of Antigonish, and the appointment of a successor to him. Presented 4th March, 1912.—*Mr. Chisholm (Antigonish).. .. ..Not printed.*

79*t*. Return to an Order of the House of the 14th February, 1912, for a copy of all letters, correspondence, petitions, recommendations, complaints and other documents in the possession of the Department of Marine and Fisheries, relating to the dismissal of Fishery Guardians in the county of Guysborough, Nova Scotia. Presented 4th March, 1912.—*Mr. Sinclair.. .. ..Not printed.*

79*u*. Return to an Order of the House of the 19th February, 1912, for a copy of all correspondence, petitions, complaints, charges, or other documents in the possession of the Department of Marine and Fisheries, relating to the dismissal of Edward Kelly from the position of engineer at the Reduction Works at Canso, Nova Scotia. Presented 4th March, 1912.—*Mr. Sinclair.. .. ..Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*v*. Return to an Order of the House of the 19th February, 1912, for a copy of all correspondence, petitions, complaints, charges or other documents in the possession of the Marine and Fisheries Department relating to the dismissal of David S. Hendsbee from the position of weigher at the Reduction Works at Canso, Nova Scotia. Presented 4th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*w*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports, recommendations and evidence taken under investigation by Dr. Shurtleff, relating to the dismissal of Anson Sheltus, of St. Armand Station, county of Missisquoi, a Preventive Officer of the Customs Department. Presented 5th March, 1912.—*Mr. Kay*.. .. ..*Not printed.*

79*x*. Return to an Order of the Senate dated the 30th January, 1912, calling for copies of all letters, papers or other documents in the hands of the government relating to the proposed removal of John Park, postmaster at Orangeville, Ontario.—(*Senate.*)

79*y*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports, telegrams, recommendation and memoranda relating to the dismissal of James McPhee as Customs Officer at West Bay, Nova Scotia, and the appointment of a successor. Presented 6th March, 1912.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

79*z*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports, recommendations and memoranda relating to the dismissal of Allan Kennedy as General Government Telegraph Repairer, Inverness county, and the appointment of his successor. Presented 7th March, 1912.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

79*aa*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports and recommendations relating to the dismissal of Wenceslas Lebel, of Kamouraska, as preventive officer of the Customs Department. Presented 12th March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

79*bb*. Return to an Order of the House of the 4th March, 1912, for a copy of all letters, complaints, charges and other documents connected with or giving any information as to the discharge of Thomas Hale, of Westville, Nova Scotia, as correspondent for the *Labour Gazette*. Presented 12th March, 1912.—*Mr. Macdonald*.. ..*Not printed.*

79*cc*. Return to an Order of the House of the 14th February, 1912, for a copy of all letters, petitions, charges, complaints and other documents in the possession of the government or any department thereof, relating to the dismissal of William A. Gerrior, customs preventive officer at Larry's River, N.S., and to the appointment of his successor. Presented 22nd March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

77*dd*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports and recommendations relating to the dismissal of Auguste Hibert as postmaster at St. Pascal, county of Kamouraska. Presented 19th March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

79*ee*. Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports and recommendations relating to the dismissal of Luc Lizotte as postmaster at St. Pacome, county of Kamouraska. Presented 19th March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

79*ff*. Return to an Order of the House of the 19th February, 1912, for a copy of all correspondence, petitions, complaints or other dcuments in the possession of the Post Office Department, relating to the dismissal of Captain Alex. Roberts, postmaster at Canso, N.S., and the appointment of his successor. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*gg*. Return to an Order of the House of the 12th February, 1912, for a copy of all documents, reports, letters, complaints, &c., relating to the dismissal in 1896, of H. St. Amour, postmaster at St. Amour, county of Prescott, and the appointment of his successor. Presented 19th March, 1912.—*Mr. Proulx*.. .. ..*Not printed.*

79*hh*. Return to an Order of the House of the 7th February, 1912, for a copy of all letters, telegrams, petitions, complaints or other documents relating to the dismissal of W. H. Harris, postmaster, at White Head, N.S., and relating to the appointment of his successor. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*ii*. Return to an Order of the House of the 7th February, 1912, for a copy of all letters, telegrams, petitions, charges, complaints, reports and other documents in the possession of the Post Office Department relating to the proposed dismissal of James McGrath, postmaster at Aspen, Nova Scotia. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*jj*. Return to an Order of the House of the 7th February, 1912, for a copy of all documents, papers, petitions, letters, &c., relating to the dismissal of Louis Girard, postmaster at Ste. Anglèle de Mêrici, county of Rimouski, and relating to the appointment of his successor. Presented 19th March, 1912.—*Mr. Lapointe* (*Kamouraska*). *Not printed.*

79*kk*. Return to an Order of the House of the 22nd January, 1912, for a copy of all letters, reports or other documents relating to the removal from office on 1st May, 1903, of John Fraser, postmaster of Stellarton, Nova Scotia. Presented 19th March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

79*ll*. Return to an Address to His Royal Highness the Governor General of the 17th January, 1912, for a copy of all petitions, requests, letters, recommendations, Orders in Council or other papers or documents in the possession or under the control of the Honourable the Postmaster General or the Post Office Department, relating to the dismissal of John M. Rogers, postmaster at East Roman Valley, N.S. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*mm*. Return to an Order of the House of the 5th February, 1912, for a copy of all correspondence and papers in connection with the appointment and subsequent dismissal of Eugene Guimond, as postmaster at St. Angele, county of Rimouski. Presented 20th March, 1912.—*Mr. Lemieux*.. .. ..***Not printed.***

79*nn*. Return to an Order of the House of the 28th February, 1912, for a copy of all charges made against Dougald R. Boyle, officer at West Arichat, Nova Scotia, and of all correspondence and telegrams between the Department of Marine and Fisheries or anv official thereof and any other person in relation thereto. Presented 21st March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

79*oo*. Return to an Order of the House of the 28th February, 1912, for a copy of all charges made against Dr. J. R. McLeod, port physician at Port Hawkesbury, N.S., the evidence taken before H. P. Duchemin in support of such charges, and his report on the same, and of all correspondence and telegrams between the said H. P. Duchemin and the Department of Marine and Fisheries or any official thereof in relation thereto. Presented 21st March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

79*pp*. Return to an Order of the House of the 4th March, 1912, for a copy of all documents, correspondence, inquiries, accusations, petitions and reports in the Department of Railways and Canals, referring to the dismissal of Mr. Theophile Morice, an officer over the delivery of the coal of the Intercolonial Railway at Rivière du Loup. Presented 21st March, 1912.—*Mr. Gauvreau*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*qq*. Return to an Order of the House of the 24th January, 1912, for a copy of all letters, requests, petitions, telegrams, complaints or charges received by the Post Office Department since 10th October, 1911, relating to the postmaster at Glenelg, N.S. Presented 22nd March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

79*rr*. Return to an Order of the House of the 18th March, 1912, for a copy of all letters, telegrams, complaints and other documents, relating to charges against Jas. W. Matheson, I.C.R. trackman at Meadowville, Pictou county, N.S., of the evidence taken and other proceedings of the investigation held on said charges, the reports thereon and of all representations in regard to the case from the Brotherhood of Trackmen. Presented 22nd March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

79*ss*. Return to an Order of the House of the 26th February, 1912, for a copy of all letters, petitions, reports, charges or other documents in the possession of the Post Office Department relating to the dismissal of J.D. McFarlane, postmaster at Southwest Margaree, Nova Scotia, and the appointment of his successor. Presented 22nd March, 1912.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

79*tt*. Return to an Order of the House of the 4th March, 1912, for a copy of all papers and correspondence in connection with the removal of the postmaster at Rathburn, township of Mara, county of Ontario, and the change of the location of the post office at said point. Presented 22nd March, 1911.—*Mr. Pardee*.. .. ..*Not printed.*

79*uu*. Return to an Order of the House of the 6th March, 1912, for a copy of all papers, complaints, letters and other documents connected with or relating to the dismissal of John McLeod as postmaster at Denmark, Colchester county, N.S., and the appointment or suggested appointment of D. McLeod to the vacancy. Presented 22nd March, 1912—*Mr. Macdonald*.. .. ..*Not printed.*

79*vv*. Return to an Order of the House of the 28th February, 1912, for a copy of all documents, letters, requests, reports and recommendations in the possession of the Post Office Department, relating to the dismissal of Doué Daoust, postmaster at Alfred, county of Prescott, and the appointment of his successor. Presented 22nd March, 1912.—*Mr. Proulx*.. .. ..*Not printed.*

79*ww*. Return to an Order of the House of the 5th February, 1912, for a copy of all documents, papers, inquiries, letters, &c., relating to the dismissal of Thomas Dionne, as postmaster of Cacouna, also the dismissal of Miss Saindon, of Cacouna, and the reinstallation of the said Thomas Dionne in the post office at Cacouna. Presented 22nd March, 1912.—*Mr. Gauvreau*.. .. ..*Not printed.*

79*xx*. Return to an Order of the House of the 7th February, 1912, for a copy of all documents, papers, petitions, recommendations, &c., relating to the request that was made to the Post Office Department for the dismissal of the postmaster at St. Anaclet, county of Rimouski. Presented 22nd March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

79*yy*. Return to an Order of the House of the 13th March, 1912, for a copy of all letters, papers, documents, memoranda, telegrams and correspondence relating to the resignation of Donald E. McLean, late postmaster at Inverness, N.S. Presented 25th March, 1912.—*Mr. Chisholm (Inverness)*.. .. ..*Not printed.*

79*zz*. Return to an Order of the House of the 26th February, 1912, for a Return showing the number of postmasters removed from office in Shefford county since the 1st October, 1911; their names, post office addresses, dates of dismissal, reasons therefor, name of complainant in each case, names of new postmaster appointed to replace them;

CONTENTS OF VOLUME 24—*Continued.*

the charges laid against the dismissed postmasters, and whether charges were investigated before their removal from office; dates of different investigations, by whom held and was the accused postmaster present at said investigations in each case; names of any other postmasters in said county who may have charges laid against them; their names, offices, names of complainants in each case and nature of the complaints; will charges be investigated before the accused postmasters are removed from office; application made for these offices and name of applicant in each case. Presented 25th March, 1912.—*Mr. Boivin*.. .. ..*Not printed.*

79*aaa*. Return to an Order of the House of the 11th March, 1912, for a copy of all charges against Arthur Brymer, fishery officer at L'Ardoise, N.S., and of all telegrams and other communications between the Minister of Marine and Fisheries, or any other officer of his department, and any other persons having reference to the same and in relation to the appointment of his successor. Presented 25th March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

79*bbb*. Return to an Order of the House of the 11th March, 1912, for a copy of all charges against Lawrence G. Power, Superintendent of the Lobster Hatchery at Arichat, N.S., and of all letters, telegrams and other communications between the Minister of Marine and Fisheries or any officer in his department, and any other person, having reference to the same and in relation to the appointment of his successor. Presented 25th March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

79*ccc*. Return to an Order of the House of the 13th March, 1912, for a copy of all papers, corrspondence, telegrams, &c., concerning the dismissal of Joachim Godbout, lighthouse keeper at St. Laurent, Isle of Orleans, county of Montmorency. Presented 25th March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

79*ddd*. Return to an Order of the House of the 22nd January, 1912, for a copy of all papers and other documents concerning the proposed investigation against P. L. St. Pierre, postmaster at St. Paul d'Abbottsford, county of Rouville, Que. Presented 27th March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

79*eee*. Return to an Order of the House of the 11th March, 1912, for a copy of all letters, requests, complaints, depositions, reports of inquiry and of every other document in the possession of the Post Office Department relating to the dismissal of Doctor H. Dupre as postmaster of St. Robert, county of Richelieu, and to the appointment of a new postmaster. Presented 27th March, 1912.—*Mr. Cardin*.. .. ..*Not printed.*

79*fff*. Return to an Order of the House of the 22nd January, 1912, for a tabulated statement showing the number of dismissals in the Post Office Department since the first day of October, 1911, in the nine provinces of the Dominion. Also, the names of the postmasters so dismissed, the locality, the cause of dismissal, the names of the petitioners praying for such dismissal in each case, and the names of the petitioners opposing said dismissals. Presented 27th March, 1912.—*Mr. Lemieux*...*Not printed.*

79*ggg*. Return to an Order of the House of the 11th March, 1912, for a copy of all letters, requests, complaints, depositions, reports of inquiry, and of every other document in the possession of the Post Office Department relating to the dismissal of Madam, the widow of Antoine St. Martin, as postmistress at St. Louis de Bonsecours, county of Richelieu, and to the appointment of a new postmaster. Presented 27th March, 1912.—*Mr. Cardin*.. .. ..*Not printed.*

79*hhh*. Return to an Order of the House of the 24th January, 1912, for a copy of all correspondence, documents, recommendations and reports respecting the dismissal of Joseph Moreau, as postmaster at St. Germain, Kamouraska, in the year 1905. Presented 27th March, 1912.—*Mr. Lapointe*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

79*iii.* Return to an Order of the House of the 20th March, 1912, for a copy of all papers, telegrams, letters, petitions and affidavits, relating to the dismissal of George Bourgoin, employed as statistician on the Lachine canal, also of all letters exchanged between the Minister of Public Works and the Minister of Railways and Canals concerning said dismissal. Presented 28th March, 1912.—*Mr. Lemieux.. ..Not printed.*

79*jjj.* Return to an Order of the House of the 26th February, 1912, for a copy of all documents, letters, requests, reports and recommendations relating to the dismissal of Louis Dechesne, an employee of the Marine Department, on the river Ouelle wharf, county of Kamouraska. Presented 29th March, 1912.—*Mr. Lapointe.. ..Not printed.*

79*kkk.* Return to an Order of the House of the 18th March, 1912, for a copy of all charges against A. M. Hatfield, fishery overseer of the county of Yarmouth, N.S., and of all letters, telegrams, and any other communications between the Minister of Marine and Fisheries or any officer of his department, and any other person, having reference to the same, in relation to the appointment of Mr. Hatfield's successor. Presented 30th March, 1912.—*Mr. Law.. .. ..Not printed.*

79*lll.* Return to an Order of the House of the 11th March, 1912, for a copy of all letters, requests, complaints, depositions, reports of inquiry and every other document whatsoever, relating to the dismissal of Mr. J. O. Dauphinais as postmaster of Sorel, county of Richelieu, and also of all letters, requests or other documents relating to the appointment of the new postmaster at Sorel. Presented 30th March, 1912.—*Mr. Cardin.. .. ..Not printed.*

79*mmm.* Return to an Order of the House of the 11th March, 1912, for a copy of all documents, letters, papers, requests, inquiries and reports respecting the dismissal of Mr. Joseph Cloutier, postmaster of St. Adolphe de Dudswell. Presented 30th March, 1912. —*Mr. Tobin.. .. ..Not printed.*

80. Return to an Order of the House of the 17th January, 1912, showing:—1. The quantity in tons of anthracite dust and Culm coal imported into Montreal during the year 1911. 2. The quantities of the same imported into other ports of the province of Quebec during the year 1911. 3. The duty collected on this product, if any, under the ruling of the Customs Department; the rate of duty and amount collected. 4. The value of said product as imported and entered at Montreal and the other ports. 5. The quantity in tons and the value of bituminous slack coal imported during the year 1911 into the port of Montreal and the various other ports, respectively, in the province of Quebec, and the duty collected thereon. Presented 25th January, 1912.— *Mr. Macdonald.. .. ..Not printed.*

81. Return to an Order of the House of the 15th January, 1912, showing the quantities, the different kinds as far as practicable, and prices of all boots and shoes imported into Canada during each of the fiscal years ending respectively 31st March, 1908, 1909 and 1910, together with the several countries from which the same were imported, giving the quantities, &c., from each country for each year. Presented 2nd February, 1912.— *Mr. Carvell.. .. ..Not printed.*

82. Return to an Address to His Royal Highness the Governor General of the 24th January, 1912, for a copy of all the correspondence between the Prime Minister of Canada, or any member of the Government, and Messieurs Fielding and Paterson, during the time the latter gentlemen were in Washington last year, on the subject of the negotiations for a Reciprocity Treaty between Canada and the United States. Presented 2nd February, 1912—*Mr. Bradbury.. .. ..Printed for distribution and sessional papers.*

CONTENTS OF VOLUME 24—*Continued.*

82*a*. Return to an Address to His Royal Highness the Governor General of the 24th January, 1912, for a copy of all correspondence from the 1st day of January, 1910, to the 1st October, 1911, between the Right Honourable James Bryce, British Ambassador at Washington, and the Government of Canada, or any member thereof with reference to the negotiations for Reciprocity Treaty between Canada and the United States. Presented February, 1912.—*Mr. Bradbury.*

Printed for distribution and sessional papers.

83. Return to an Address to His Royal Highness the Governor General of the 31st January, 1912, for a copy of the letters patent relating to the office of Governor General of Canada, of the Commission issued to the present Governor General, and of the instructions accompanying the same. Presented 2nd February, 1912.—*Mr. Macdonald.*

Printed for sessional papers.

84. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1912, for a copy of the treaty between Great Britain, the United States and Russia for the suspension of pelagic sealing, and all correspondence regarding the same from the initial negotiations to the present day. Presented 5th February, 1912. —*Sir Wilfrid Laurier*.. .. ..*Printed for sessional papers.*

85. Return to an Order of the House of the 22nd January, 1912, showing whether the government or the Montreal Harbour Commission purchased any cement for its different works, from the 1st January, 1905, to the 21st September, 1911; if so, from whom purchased; the price paid, and were tenders called for before purchasing. Presented 5th February, 1912.—*Mr. Boulay*.. .. ..*Not printed*

86. Copy Fifth Report of the Commission for the Demarcation of the Meridian of the 141st Degree of West Longitude.—(*Senate*).. .. ..*Printed for sessional papers.*

87. Return to an order of the House of the 22nd January, 1912, showing:—1. How many farm labourers and domestic servants have been placed by each employment agent in Eastern Canada, or whom a commission has been paid, during each of the years 1907, 1908, 1909, 1910, 1911, and up to date in the month of January, 1912. 2. The total amount of commission paid to each of such agents in each of the years mentioned, and the counties and provinces in which they are located. Presented 5th February, 1912.—*Mr. Sutherland*.. .. ..*ot printed.*

88. Return to an Order of the House of the 22nd January, 1912, showing how many homestead inspectors were employed in the province of Saskatchewan by the Department of the Interior on 1st October, 1911, and what were their names; names of any of these inspectors who have been dismissed from office; reasons for dismissal; names of persons appointed to the positions so vacanted, giving their previous occupations, respectively. Presented 8th February, 1912.—*Mr. Thompson*.. .. ..*Not printed.*

89. Return to an Order of the House of the 22nd January, 1912, for a copy of all papers, letters, telegrams and other documents relative to prosecutions under the Fishery Act against John McCabe, David Porter, Joseph Foster and Duncan Murray, in the county of Pictou; and also, relating to a suit of Porter *vs.* Murray in the County Court of District No. 5, Nova Scotia, and the connection of the department with the same. Presented 9th February, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

90. Copy P.C. 19/168 certified extract from the minutes of a meeting of the Treasury Board, held on the 22nd January, 1912, approved by His Royal Highness the Governor General in Council on the 27th January, 1912.—(*Senate*)... .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

91. Return to an Address to His Royal Highness the Governor General on the 5th February, 1912, for a copy of all papers, letters, Orders in Council and other documents respecting the superannuation of the Honourable Judges Sir Alexandre Lacoste, J. A. Ouimet and C. J. Doherty. Presented 9th February, 1912.—*Mr. Ethier.*
Not printed.

92. Return showing certain dates returned to Senate by Messrs. A. E. Forget, &c.—(*Senate*).
Not printed.

93. Return to an Order of the House of the 22nd January, 1912, for a copy of all letters, correspondence, reports or other documents relating to the erection of an armoury at the town of Sarnia, Ontario. Presented 13th February, 1912.—*Mr. Pardee.*
Not printed.

94. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1912, for a copy of all correspondence between the Government of Canada and the Government of the province of Quebec, with regard to the extension of the boundaries of the said province. Presented 13th February, 1912.—*Sir Wilfrid Laurier.*
Printed for distribution and sessional papers.

95. Return to an Order of the House of the 29th January, 1912, for a copy of all correspondence, representations, estimates, letters, telegrams and other documents received by the Right Honourable Prime Minister, or by any member of the Government, in any way relating to the subject of a car ferry service between the province of Prince Edward Island and the mainland, across the Straits of Northumberland, and the widening of the gauge of the Prince Edward Island Railway; and also, as to the estimated cost of all such work. Presented 13th February, 1912.—*Mr. Emmerson.*
Not printed.

95*a*. Supplementary Return to an Order of the House, of the 29th January, 1912, for a copy of all correspondence, representations, estimates, letters, telegrams and other documents received by the Right Honourable Prime Minister, or by any member of the Government, in any way relating to the subject of a car ferry service between the province of Prince Edward Island and the mainland, across the Straits of Northumberland, and the widening of the gauge of the Prince Edward Island Railway and also as to the estimated cost of all such work. Presented 7th March, 1912.—*Mr. Emmerson*.. .. ..*Not printed.*

95*b*. Return to an Order of the House of the 5th February, 1912, for a copy of all letters, telegrams, or other documents containing applications or requests for the establishment of a car ferry service between Prince Edward Island and the mainland and of all correspondence, telegrams, reports, survey, and other documents showing the cost of the same, and of widening the gauge of the Prince Edward Island Railway; together with all other information available as to the desirability or necessity of said projects. Presented 7th March, 1912.—*Mr. Pardee*.. .. ..*Not printed.*

96. Return to an Order of the House of the 17th January, 1912, for a copy of all correspondence between the Department of Railways and Canals, or any official thereof, and the Saint John Railway Company, or the municipality of the city and county of St. John, on the subject of the granting of permission to the Saint John Railway Company, to lay its rails across the track of the Intercolonial Railway at or near the Haymarket Square in the city of St. John. Presented 13th February, 1912.—*Mr. Pugsley*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

96*a*. Supplementary Return to an Order of the House of the 17th January, 1912, for a copy of all correspondence between the Department of Railways and Canals, or any official thereof, and the Saint John Railway Company, or the municipality of the city and county of St. John, on the subject of the granting of permission to the Saint John Railway Company, to lay its rails across the track of the Intercolonial Railway at or near the Haymarket Square in the city of St. John, New Brunswick. Presented 14th February, 1912.—*Mr. Pugsley*... .. ..*Not printed.*

97. Return to an Order of the House of the 17th January, 1912, for a copy of all papers, reports, correspondence and messages respecting a report made in 1904 by H. Boulay of Sayabec, against William Roy, sectionman at Amqui, Intercolonial Railway, and of all that has been subsequently done to give effect to that report. Presented 14th February, 1912.—*Mr. Boulay*.. .. ..*Not printed.*

97*a*. Return to an Order of the House of the 7th February, 1912, for a copy of all letters, papers, charges, affidavits and other documents relating to a charge against W. W. Gray, coal inspector of the Intercolonial Railway at Westville, Nova Scotia, and of all evidence, documents, reports, or other papers connected with the investigation of said charge by H. P. Duchemin. Presented 14th February, 1912.—*Mr. Macdonald.* *Not printed.*

98. Return to an Order of the House of the 17th January, 1912, for a copy of all papers, letters, recommendations, ministerial instructions, and any other document, from the Department of Customs relating to a temporary change in the customs tariffs upon the twine used in the headings of lobster traps. Presented 15th February, 1912.—*Mr. McLean*.. .. ..*Not printed.*

99. Return to an Order of the House of the 5th February, 1912, for a copy of all papers, memorials, resolutions and letters received from boards of trade, officials or individuals during the years 1908, 1909, 1910, 1911, 1912, respecting the location of a quarantine or inspecting station on Lawlor's Island, Halifax harbour, accompanied by a chart. Presented 16th February, 1912.—*Mr. McLean*.. .. ..*Not printed.*

100. Return to an Address to His Royal Highness the Governor General of the 5th February, 1912, for a copy of all papers, correspondence and Orders in Council, relating to or in any way connected with the surveying and calling for tenders for the construction of the line of railway from Estmere to Baddeck, in the county of Victoria. Presented 16th February, 1912.—*Mr. McKenzie*.. .. ..*Not printed.*

100*a*. Return to an Address to His Royal Highness the Governor General of the 22nd January, 1912, for a copy of all papers, correspondence, and other Orders in Council in connection with the calling for tenders for the construction of the proposed branch line of railway from Estmere to Baddeck, in the county of Victoria, or bearing upon the reason why none of all said tenders were not accepted. Presented 16th February, 1912.—*Mr. McLean*.. .. ..*Not printed.*

100*b*. Return to an Order of the House of the 4th March, 1912, for a copy of all letters, contracts, memoranda, or notice cancelling contracts, and of all other papers and documents in the possession of the Department of Railways and Canals, bearing date after 1st January, 1911, relating to the construction of certain branch lines of the Intercolonial Railway between Sunny Bræ and Guysborough and Country Harbour, and between Dartmouth and Dean Settlement, in the province of Nova Scotia. Presented 21st March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

101. Return to an Address to His Royal Highness the Governor General of the 15th January, 1912, for a copy of Orders in Council and all correspondence between the Government and the Winnipeg and Hudson's Bay Railway Company and its successor the Winnipeg Great Northern Railway, relative to the proposed route of said Railway to Hudson's Bay, with all accompanying plans and reports; also a copy of all correspondence relative to the offer of Milburn and Company, Steamship owners, of England, said to have been made to the Government through the said Railway Company to place a line of their steamships on the route between Hudson's Bay and England on the completion of said Railway, and the further offer by the said Milburn and Company to place one of their Baltic steamships at the disposal of the Government for the purpose of making a practical test of the navigability of the route for commercial purposes. Presented 16th February, 1912. —*Mr. Aikins.*

Not printed.

101*a*. Return to an Order of the House of the 26th February, 1912, for a copy of all reports, surveys, plans and maps made or prepared during the year 1911 or this year, in respect of or in connection with the Hudson Bay Railway or the suggested ports at Nelson or Churchill on the Hudson Bay, or relating to the navigation of the Hudson straits. Presented 4th March, 1912.—*Mr. Aikens.*

Printed for distribution and sessional papers.

102. Return to an Order of the House of the 5th February, 1912, for a copy of the inquiry made by the Railway Department respecting the accident incurred by Goffrey Bourque, of Lac au Saumon, in the yard of the Intercolonial Railway at Campbellton, in the month of November or December, 1911; also, for all papers and correspondence exchanged since on this subject. Presented 16th February, 1912.—*Mr. Boulay.*

Not printed.

103. Return to an Order of the House of the 14th February, 1912, for a copy of all correspondence, letters, telegrams, &c., between the King's Printer, the Superintendent of Printing, and the King's Printers' Representatives in Winnipeg, regarding the printing and distribution of the Voters' Lists of the province of Manitoba at the last general elections. Presented 19th February, 1912.—*Mr. Staples*.. .. ..*Not printed.*

104. Return to an Order of the House of the 17th January, 1912, for a copy of the Report of the Board of Engineers appointed for the reconstruction of the Quebec bridge, and of the plans and specifications prepared by them; of all notices calling for tenders; of all tenders received; of the report of the Board on the same, collectively or individually, to the Minister of Railways; of the report of the said minister for the acceptance of tenders, and any Orders in Council awarding contracts for the building of the said bridge. Presented 19th February, 1912.—*Sir Wilfrid Laurier.*

Printed for sessional papers.

105. Return to an Address to His Royal Highness the Governor General of the 12th February, 1912, for a copy of all Orders in Council passed during the last ten years relating to the abolition or regulation of tolls on canals. Presented 19th February, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

106. Return to an Order of the House of the 12th February, 1912, for a copy of all petitions, letters and memorials received by the Minister of Marine and Fisheries since the first day of October, 1911, protesting against the issuing of a fish-trap license to Captain John T. Thorburn, Sand Point, county of Shelburne, Nova Scotia. Presented 22nd February, 1912.—*Mr. Law*.. .. ..*Not printed.*

106*a*. Return to an Order of the Senate, dated 22nd March, 1912, for the production of all petitions and correspondence in relation to the removal of a fish trap at or near McNutts Island, in the harbour of Shelburne.—(*Senate*)... .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

107. Return to an Order of the Senate, dated 15th February, 1912, showing the names, position and pay of all persons appointed to the Intercolonial Railway service in the city of St. John, New Brunswick, from 1st September, 1907, to 1st March, 1911.—(*Senate*). *Not printed.*

108. Certified copy of a Report of the Committee of the Privy Council, approved by His Royal Highness the Governor General on the 22nd February, 1912, referring certain questions to the Supreme Court of Canada in respect to Bill No. 3, of the First Session of the Twelfth Parliament of Canada, intituled: "An Act to amend the Marriage Act." Presented 23ar February, 1912.—*Hon. Mr. Doherty..Printed for sesional papers.*

108*a*. Return to an Order of the House of the 19th February, 1912, for a copy of all letters, petitions, memorials or other documents received by the Prime Minister or any other member of the government, relating to the passage of a federal marriage law or legislation in regard to the so-called effect of the Ne Temere Decree. Presented 25th March, 1912.—*Mr. Macdonald*.. .. ..*Printed for sessional papers.*

109. Return to an Order of the House of the 17th January, 1912, for a copy of all papers, letters, recommendations, petitions, ministerial instructions and other documents in the possession of the Department of Marine and Fisheries relating to the price from 31st March, 1911, of Dog Fish scrap. Presented 23rd February, 1912.—*Mr. Sinclair. Not printed.*

110. Return to an Address of His Royal Highness the Governor General of the 5th February, 1912, for a copy of all correspondence, memorials or communications of any kind between the government of the province of Ontario and the Dominion Government since 1st January, 1908, respecting the extension of the boundaries of the province of Manitoba or the division of the Territory of Keewatin. Presented 23rd February, 1912... .. ..*Not printed.*

110*a*. Return to an Address to His Royal Highness the Governor General of the 4th December, 1911, for a copy of all papers, letters, telegrams, memoranda or correspondence of any kind had between the Dominion Government and the governments of Manitoba and Saskatchewan, or with the Government of Ontario, as to the settlement of the boundaries of said respective provinces; and also, of any agreement or memo. containing any terms of settlement of the questions relating to the boundaries of said provinces or any part thereof; and also, of any documents, letters or representations made to the Federal Government by any person or persons relative to said settlement or the questions involved therein. Presented 26th February, 1912.—*Mr. Macdonald. Printed for sessional papers.*

110*b*. Return to an Address of His Royal Highness the Governor General of the 5th February, 1912, for a copy of all correspondence, memorials or communications of any kind between the Government of the province of Ontario and the Dominion Government since 1st January, 1908, respecting the extension of the boundaries of the province of Manitoba or the division of the territory of Keewatin. Presented 26th February, 1912.—*Mr. Meighen*.. .. ..*Printed for sessional papers.*

111. Return to an Address of the Senate, dated 24th January, 1912, for copies of the contracts betweetn the Government of Canada, and the various steamship companies for the carriage of the mails between England, France and Canada, and all the correspondence relating thereto since the first of January, 1909; also, the agreements, if any, for the carriage of mails via New York. Further, any contracts, subsidy agreements, &c., for the conveyance of mail between Canada and Newfoundland, and the correspondence relating thereto since the first of January, 1909.—(*Senate*). *Printed for sessional papers.*

CONTENTS OF VOLUME 24—*Continued.*

112. Memorandum of the Chief Architect to the Deputy Minister of the Department of Public Works relative to the "Forbes Sterilizers" in use in the House of Commons and several departments. Presented 26th February, 1912.. .. ..*Not printed.*

113. Return to an Order of the House of the 5th February, 1912, for a copy of all reports, correspondence and papers relating to the building of the Saint John Valley Railway from Saint John to Grand Falls, New Brunswick. Presented 27th February, 1912.—*Mr. Michaud*.. .. ..*Not printed.*

114. Return to an Order of the House of the 14th February, 1912, for a copy of all documents, papers, correspondence, inquiries, evidences, reports, &c., relating to an accident sustained by Alphonse Madore, employed on the Intercolonial at Ste. Flavie, in 1888 or 1889, and to the settling of the claim then made by the said Alphonse Madore to the Department of Railways and Canals. Presented 27th February, 1912.—*Mr. Lapointe (Kamouraska)*... .. ..*Not printed.*

114*a*. Return to an Order of the House of the 4th March, 1912, for a copy of all inquiries, correspondence whatsoever relating to the death of the late Absolon Lavoie, of Amqui, accidentally killed on the Intercolonial Railway at Metis, county of Rimouski, during the summer of 1911. Presented 18th March, 1912.—*Mr. Boulay*..*Not printed.*

114*b*. Return to an Order of the House of the 4th March, 1912, for a copy of all papers, documents, letters, &c., connected with an inquiry made by the Intercolonial authorities on the loss of a horse killed on the Dalhousie branch, belonging to Mr. Xavier St. Laurent, of Causapscal since 1905. Presented 26th March, 1912.—*Mr. Lapointe (Kamouraska)*.. .. ..*Not printed.*

115. Return to an Order of the House of the 31st January, 1912, for a copy of all papers, statements, letters, telegrams, statement of claim and application, minutes of the evidence taken on any investigation held, with all reports thereon, and all other documents in any way relating to a claim of Earl Ash, for damages caused by and resulting from the destruction by fire of property owned, occupied and passessed by the claimant, alleged to have been caused by fire and sparks from a locomotive of the Intercolonial Railway of Canada, and operated by said railway. Presented 27th February, 1912.—*Mr. Emmerson*.. .. ..*Not printed.*

115*a*. Return to an Order of the House of the 26th February, 1912, for a copy of all letters, evidence taken under investigation by Superintendent Sharp, reports and other documents connected with a claim for damages occasioned by fire to the property of Angus J. McAulay, of Tracadie, Prince Edward Island, on the 16th day of July, 1911. Presented 1st March, 1912—*Mr. Macdonald*.. .. ..*Not printed.*

116. Return to an Order of the House of the 26th February, 1912, for a copy of all papers, documents, &c., concerning the incorporation and operations of the Fidelity Trust Company of Montreal. Presented 28th March, 1912.—*Mr. McKenzie*.....*Not printed.*

117. Return to an Order of the Senate, dated the 31st January, 1912, for copies of Acts, documents, correspondence, &c., concerning the expropriation of the properties of F. Turgeon and F. Gunn, in the city of Quebec for the purpose of a Central station.—*(Senate)*.. .. ..*Not printed.*

118. Return to an Order of the House of the 26th February, 1912, for a copy of all papers and correspondence relating to the incorporation and operations of The Provident Trust Company, of Montreal. Presented 1st March, 1912.—*Mr. Lemieux.*

Not printed.

CONTENTS OF VOLUME 24—*Continued.*

119. Return to an Address to His Royal Highness the Governor General of the 10th January, 1912, for a copy of all Orders or Minutes of Council relating to the appointment of commissioners under the treaty with the United States relating to boundary waters, and questions arising along the boundary between Canada and the United States, signed at Wshington, 11th January, 1909; together with a copy of all despatches, letters and telegrams between the Governor General, or the Government of Canada, or any member thereof, and the British ambassador at Washington, or the British Government, or any member thereof, upon that subject; and also, of all letters and telegrams between any member or department of the government and Sir George Gibbons, Mr. Aimé Geoffrion and Mr. Alexander Barnhill, or either of them, relating to their appointment as such commissioners. Presented 1st March, 1912.—*Mr. Pugsley*.. .. ..*Printed for sessional papers.*

120. Return to an Address to His Royal Highness the Governor General of the 29th November, 1911, for a copy of all correspondence since the first of July, 1896, to the present date, between the Government of Canada and the governments of the several provinces on the subject of assistance to provincial railways and other provincial public works. Presented 1st March, 1912.—*Sir Wilfrid Laurier*..*Printed for sessional papers.*

121. Return to an Order of the House of the 26th February, 1912, for a copy of all papers and documents in the case of Rex *vs.* Sheldon and others. Presented 5th March, 1912.—*Mr. McKenzie*.. .. ..*Not printed.*

122. Return to an order of the House of the 26th February, 1912, for a copy of all papers, correspondence and documents in connection with the case of D. Raymond, petitioner, the Queen's Hotel Company, Limited, respondent, and Guillaume Narcisse Ducharme and others, party defendants. Presented 5th March, 1912.—*Mr. Lemieux.*
Not printed.

123. Return to an Order of the Senate dated 9th February, 1912, showing the terms of lease to the whaling company or companies for whale fishing on the coast of British Columbia, giving the extent of sea over which exclusive rights are given, rent paid, and restriction as to close season, and all other particulars relating to this subject.—(*Senate*).. .. ..*Not printed.*

123*a*. Return to an Address of the Senate dated 9th February, 1912, for a return showing the term of lease by the government to a company giving rights to exclusive fishing in the fresh water lakes of the Dominion; with all conditions as to time, rent, subletting and close season, and any other information relating to this subject.—(*Senate*).. .. ..*Not printed.*

124. Return to an Address of the Senate, dated 22nd February, 1912, for all correspondence respecting the inefficient postal delivery service at Rothesay, N.B.—(*Senate*).
Not printed.

125. Laid before the House, by command of His Royal Highness the Governor General,—Copy of agreement between His Majesty the King on behalf of the Dominion of Canada, His Majesty on behalf of the province of New Brunswick, and the Saint John and Quebec Railway Company, for the leasing under terms and conditions specified, of the line of railway when completed, of the company, between Grand Falls and Saint John, N.B. Presented 11th March, 1912... .. ..*Not printed.*

126. Return to an Order of the House of the 22nd January, 1912, or a copy of all correspondence and papers referring to the granting of special aid to the tobacco growers of La Société Co-opérative de la Vallée de Yamaska. Presented 13th March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

127. Return to an Order of the House of the 22nd January, 1912, for a copy of all letters, correspondence, reports or other documents relating to the proposed winter harbour at Sarnia, Ontario. Presented 13th March, 1912.—*Mr. Pardee*.. .. .. ..*Not printed.*

127*a*. Return to an Order of the House of the 26th February, 1912, for a copy of all reports, petitions and correspondence in the possession of the Department of Public Works, relating to the improvement of Port Dover harbour, in Norfolk county, Ontario; together with all papers or documents relating to the connection of the Grand Trunk Railway Company therewith. Presented 29th March, 1912.—*Mr. Charlton.*
Not printed.

127*b*. Supplementary Return to an Order of the House of the 26th February, 1912, for a copy of all reports, petitions and correspondence in the possession of the Department of Public Works, relating to the improvement of Port Dover harbour, in Norfolk county, Ontario, together with all papers or documents relating to the connection of the Grand Trunk Railway Company therewith. Presented 1st April, 1912.—*Mr. Charlton*.. .. ..*Not printed.*

128. Certified extract from the Minutes of a meeting of the Treasury Board held on the 4th March, 1912, approved by His Royal Highness the Governor General in Council on the 9th March, 1912, respecting the term of service and pay of the constables of the Royal Northwest Mounted Police. Presented 13th March, 1912... .. .. ..*Not printed.*

129. Return to an Order of the House of the 5th February, 1912, for a copy of all reports, correspondence and papers, relating to the building of a breakwater at Port Richmond, Nova Scotia. Presented 14th March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

129*a*. Return to an Order of the House of the 5th February, 1912, for a copy of all reports, correspondence and papers relating to the building of a breakwater at Charles Forests Cove, Richmond county, Nova Scotia. Presented 18th March, 1912.—*Mr. Kyte.*
Not printed.

130. Return to and Order of the House of the 4th March, 1912, for a copy of all correspondence between the Intercolonial authorities, the Minister of Railways and the Department of Justice, and all other persons, relating to a claim of the Metapedia Waterworks Company against the Intercolonial, including therein all plans, designs, inquiries, evidences and other reports concerning this matter; also a copy of all plans, designs, notices and correspondence between the Intercolonial authorities and M. P. Laberge, the Dominion Lumber Company and John Fenderson & Co., relating to the placing of an aqueduct pipe on the land No. 170 of the cadastre of St. Pierre du Lac. Presentd 15th March, 1912.—*Mr. Boulay*.. .. ..*Not printd.*

131. Statement of the affairs of the British Loan and Investment Company, as on the 31st December, 1911. Presented 18th March, 1912.. .. ..*Not printed.*

132. Return to an Order of the House of the 6th March, 1912, for a copy of all letters, complaints, charges, and other papers and documents in the possession of the Post Office Department relating to Tracadie Road Post Office, Guysborough, N.S. Presented 19th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

133. Return to an Order of the House of the 6th March, 1912, for a copy of the news sent up to date to Magdalen Island by the weekly correspondent appointed by the Postmaster General; also for a copy of the instructions given said correspondent at the time of his appointment. Presented 19th March, 1912.—*Mr. Lemieux*.. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

134. Return to an Order of the House of the 5th February, 1912, for a copy of all letters, telegrams, petitions, reports and documents relating to the notice of cancellation of mail contract between Scott Junction and the station in the county of Beauce. Presented 19th March, 1912.—*Mr. Béland*.. .. ..*Not printed.*

134*a*. Return to an Order of the House of the 31st January, 1912, for a copy of all letters, telegrams, correspondence, reports and other documents in relation to the mail contract between River John Railway station and the post office, and between River John and Hodson, respectively, since 1st October, 1911, and as to the cancellation of the contract for said service with Logan and the making of a contract for the same with one Gannon. Presented 19th March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

134*b*. Return to an Order of the House of the 31st January, 1912, for a copy of all letters, telegrams, reports and other documents in relation to the mail contract service between Stellarton station and the post office since 1st October, 1911, and as to the cancellation of the contract for said service with the present contractor. Presented 19th March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

134*c*. Return to an Order of the House of the 5th February, 1912, for a return showing all the contracts for the conveyance of His Majesty's mails, in which notice of cancellation has been given under the terms of the said contract, between 10th October, 1911, and 1st February, 1912, and also the name and address of each contractor and the amount of each contract. Presented 27th March, 1912.—*Mr. Lemieux.* *Not printed.*

135. Return to an Address to His Royal Highness the Governor General of the 17th January, 1912, for a copy of the Parcel Post Convention between Canada and France, and all papers connected therewith. Presented 19th March, 1912.—*Mr. Lemieux.* *Not printed.*

136. Return to an Order of the House of the 22nd January, 1912, for a copy of all letters, telegrams, reports, recommendations applications and other documents, relating to the appointment of a post office inspector at Moosejaw, Saskatchewan. Presented 19th March, 1912.—*Mr. Knowles*.. .. ..*Not printed.*

137. Return to an Address to His Royal Highness the Governor General, on the 4th March, 1912, for a copy of all letters, telegrams and petitions, sent to the Government, or any of His Majesty's ministers, praying for the establishment of a separate school system in the Keewatin Territory. Presented 20th March, 1912.—*Mr. Lemieux*...*Not printed.*

138. Return to an Address to His Royal Highness the Governor General of the 28th February, 1912, for a copy of all papers, recommendations to Council, Orders in Council, or any other papers in connection with or having reference to the promotion of Mr. Binks to be Superintendent of the Dead Letter Office. Presented 28th March, 1912.—*Mr. Henderson*.. .. ..*Not printed.*

139. Return dated 12th March, 1912, for a copy of all correspondence between the Anglo-Canadian Chemical Company, and the Department of the Inland Revenue from 1st of January, 1911, to date.—(*Senate*)... .. .. *Not printed.*

140. Return to an Order of the House of the 26th February, 1912, for a copy of all papers on file with the Government and of all letters, telegrams and correspondence between the Labour Department and the Board of Conciliation in relation to the strike now and for some time past existing on the Grand Trunk Pacific Railway west of Winnipeg. Presented 21st March, 1912.—*Mr MacNutt*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Continued.*

141. Return to an Order of the House of the 5th February, 1912, for a copy of all rulings or decisions made by the Minister of Customs, or the Tariff Board of the Department of Customs, since the 10th of October last, in reference to the duty payable in respect to Jute cloth, traction engines and partially dressed lumber, respectively; and likewise in reference to any other articles imported into Canada concerning which there has been any change in the rate of duty exacted at any time since the said date, as compared to the rate of duty exacted on such articles respectively immediately prior to said date. Presented 21st March, 1912.—*Mr. Turriff*.. .. ..*Not printed.*

142. Return to an Order of the House of the 5th February, 1912, for a copy of all letters, telegrams, petitions or other papers relating to any change or proposed change of postmasters at Powassan between 1st January, 1906, and 1st January, 1912. Presented 22nd March, 1912.—*Mr. Arthurs*.. .. ..*Not printed.*

143. Return to an Order of the House of the 13th March, 1912, for a return showing the rural mail routes established by the present Government; the number of requests received by the Post Office Department for the establishment of rural mail routes; the number of applications granted; the number not granted, and the reasons therefor. Presented 22nd March, 1912.—*Mr. Lemieux*.. .. ..*Not printed.*

144. Return to an Address to His Royal Highness the Governor General of the 12th February, 1912, for a copy of all Orders in Council, petitions and memorials, passed or received by the Government of Canada, respectively, since 1se July, 1908, relating to foreign shippings engaged in the coastwise trade in Canada; and also a copy of all correspondence between the Government or any departments thereof and any person, company or corporation relating to the same. Presented 25th March, 1912.—*Mr. Kyte*.. .. ..*Not printed.*

145. Return to an Order of the 26th February, 1912, for a return showing the various loans made by the Government of Canada since the year 1900; the periods for which they were made; where contracted; rate of interest; commissions paid and to whom; net proceeds per cent of each loan; will future loans be asked for by public tender, if so where? Presented 25th March, 1912.—*Mr. Lapointe (Montreal)*.. .. .. ..*Not printed.*

146. Return to an Order of the House of the 19th February, 1912, for a return showing the number and capacity of cold storage establishments in each of the principal cities of Canada; the kind and quantity, approximate value of food stuff and produce contained in each of these establishments, during the months of November and December, 1911, and January, 1912. Presented 25th March, 1912.—*Mr. Verville.*

Not printed.

147. Return to an Order of the House of the 17th January, 1912, for a copy of the Judgment of the Judicial Committee of the Privy Council in the case of the King *vs.* The Burrard Power Company, and of all Orders in Council for the transmission to the government of the province of British Columbia of the administration of all water rights in the Railway Belt; together with a copy of all correspondence between the Government of British Columbia and the Government of Canada with regard to the same. Presented 25th March, 1912.—*Sir W. Laurier*.. .. ..*Not printed.*

148. Return to an Address to His Royal Highness the Governor General of the 26th February, 1912, for a copy of all letters, documents and memoranda from the government of British Columbia, and all other papers relating to negotiations affecting the exportation of salmon, the boat rating in canneries, the system of issuing licenses and the restriction of licenses to Asiatics in the province of British Columbia, and all Orders in Council made in regard to any of these matters since 1st October, 1911. Presented 25th March, 1912.—*Mr. Macdonald*.. .. ..*Not printed.*

CONTENTS OF VOLUME 24—*Concluded.*

149. Return to an Order of the House of the 19th February, 1912, for a return showing the date of the appointment of Mr. H. P. Duchemin to investigate complaints against government officials in Nova Scotia; the remuneration he is to receive for his services, the daily allowance specified for his travelling and living expenses, full detail of his remuneration and expenses, the amount paid him so far; any account or statement presented which has not been paid, the gross amounts for which accounts have been paid. The names of any other parties conducting investigations in Nova Scotia, their remuneration, the number of the commissioners appointed in all the provinces by the present government or any department, to investigate charges of political partisanship on the part of officials, their names and addresses, and the dates of appointment and remuneration, including allowance for expenses. Presented 27th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

150. Return to an Order of the House of the 4th March, 1912, for a copy of all letters, petitions, requests, memoranda, ministerial or departmental instructions in the possession of the Government or any department thereof, relating to the alleged change of name of Blind River Post Office, in the province of Ontario. Presented 25th March, 1912.—*Mr. Sinclair*.. .. ..*Not printed.*

151. Report from the Department of Labour on Wholesale Prices in Canada, 1911. Presented 28th March, 1912.—*Hon. Mr. Crothers*.. .. ..*Not printed.*

152. Résumé of General Elections, 1911. Presented 30th March, 1912.. .. .. ..*Not printed.*

153. Return to an Order of the House of the 12th February, 1912, for a return showing the amount paid since 15th October, 1911, for making and repairing mail bags, and for the metal parts thereof including locks; the names and addresses of the companies, firms and individuals to whom payment has been made, and the amount in each case. Presented 29th March, 1912.—*Mr. Kay*.. .. ..*Not printed.*

154. Return to an Order of the House of the 17th January, 1912, for a copy of all documents relating to the purchase and repair of the post office at Berthier-en-haut. Presented 1st April, 1912.—*Mr. Barette*.. .. ..*Not printed.*

155. Names of Commissioners appointed under 'Inquiries Act."—(*Senate*)...*Not printed.*

DEPARTMENT OF AGRICULTURE

CANADA

REPORT

OF THE

VETERINARY DIRECTOR GENERAL

AND

LIVE STOCK COMMISSIONER

J. G. RUTHERFORD,

For the Year ending March 31, 1910

PRINTED BY ORDER OF PARLIAMENT

OTTAWA

PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY

1911

[No. 15b—1912.]

REPORT OF THE VETERINARY DIRECTOR GENERAL AND LIVE STOCK COMMISSIONER

HEALTH OF ANIMALS AND LIVE STOCK BRANCHES.
OTTAWA, March 31, 1910.

SIR,—I have the honour to present my report as Veterinary Director General and Live Stock Commissioner for the year ending March 31, 1910.

HEALTH OF ANIMALS.

As will be shown by the statistics and other details, I am glad to be able to say that, in so far as the Health of Animals Branch is concerned, the progress made during the year in regard to the control of most of the diseases dealt with under the Animal Contagious Diseases Act has been very satisfactory.

GLANDERS.

The results attending the aggressive policy, which has for some years back been followed in regard to glanders, are very gratifying, inasmuch as, while the number of animals tested is constantly increasing, the cases discovered are yearly becoming fewer and the amount of compensation paid correspondingly less.

A comparative statement covering the five years period, which has elapsed since the adoption of the new policy, will be found among the statistics published herewith.

MALADIE DU COIT.

A few cases of dourine or maladie du coit are still from time to time discovered in Southern Alberta, but, although the disease still exists, it is gratifying to be able to report that its prevalence is greatly diminished, and that it has been practically confined to the district in which its existence was first discovered six years ago.

The research work in connection with dourine, conducted by Dr. Watson, Second Assistant Pathologist, at the Branch Laboratory near Lethbridge, Alta., is still being carried on. In Dr. Watson's report, which is printed as an appendix hereto, much valuable information will be found.

MANGE.

The prevalence of mange of horses has also been greatly diminished, and there is every reason to believe that in the near future it will be entirely eradicated, although so far as range horses are concerned its control is a matter of the greatest difficulty.

Mange in cattle is also steadily decreasing under the policy of close supervision, adopted in 1908. This disease, like horse mange, is of but little importance among domestic stock, although on the range, where its rapid spread is favoured by the climatic and other conditions, it is apt, especially in severe weather, to give rise to serious losses.

SHEEP SCAB.

A few isolated outbreaks of sheep scab, involving in each case but few individual animals, have been dealt with by the officers of the department. With the exception of one case in British Columbia, where the disease was directly introduced from the United States, these outbreaks have been confined to the province of Ontario.

So far as can be ascertained this disease has now been completely eradicated from among Canadian sheep, and I am pleased to be able to report that the restrictions imposed by the United States authorities, whereby a quarantine of thirty days was required in the case of Canadian sheep entering that country for purposes other than slaughter, was in October last entirely removed, in consideration of this department taking certain precautions in regard to the dipping of stock of this class before shipment.

HOG CHOLERA.

Several outbreaks of hog cholera have taken place during the year, but with the exception of a few cases in the neighbourhood of New Westminster, B.C., in which the origin of infection was traced to animals from the United States, these outbreaks have taken place only among swill fed hogs in the vicinity of various, widely separated, urban communities.

It is remarkable that these outbreaks have all occurred among hogs which, so far as I have been able to ascertain, have not been exposed to infection. Outbreaks under similar circumstances have been observed in other countries, but although they have been made the subject of exhaustive research and investigation, no definite explanation has yet been furnished. There is reason to believe that the infection is conveyed through animals eating among the swill and garbage on which they are fed, uncooked pork products, derived from infected hogs, but so far this theory has not been definitely proved.

Some experimental work in this connection is at present being carried on at the Biological Laboratory of this Branch, but so far without the acquisition of any additional information on the subject.

RABIES.

The outbreak of rabies, which, beginning at Queenston, Ont., in May, 1907, gradually extended over the western peninsula of Ontario, assumed during the past year, such alarming proportions as to necessitate the adoption of somewhat stringent measures.

It was necessary in February last to secure the passage of an order in council requiring the muzzling, or detention under lock and key, of all dogs in that part of the western peninsula of Ontario lying west of the eastern boundaries of the counties of York and Simcoe. By securing the co-operation of the provincial health authorities, it was possible to minimize the expense of enforcing this order, which, although not as closely observed in some districts as it might have been, has already largely reduced the number of outbreaks.

In order to prevent the spread of the disease to other portions of the Dominion, the movement of dogs from the area above described was, early in March, entirely prohibited. As an illustration of the need for this precaution, I may cite the fact that an outbreak of rabies, which occurred last year in Alberta, was traced to a dog shipped from the infected area in Ontario several months previously.

The success which has attended the enforcement of these orders is such as to encourage the belief that the outbreak will shortly be entirely under control.

Although a great many human beings have been bitten by rabid or suspected dogs, the prompt measures adopted by the Ontario Board of Health, in providing for

the application of the Pasteur treatment, have apparently been successful in counteracting the infection, excepting one case where death supervened under very painful circumstances.

Large numbers of horses, cattle, sheep and swine have contracted the disease through being bitten by rabid dogs, some individual owners having in this way suffered rather serious losses.

While, owing to the long and open boundary between Canadian territory and that of the United States, it is almost too much to hope that we will be able to prevent the introduction of fresh infection from time to time, a task successfully accomplished in Great Britain by means of muzzling orders and strict quarantine precautions, I am inclined to believe that it will be possible to successfully control the present outbreak and keep it within bounds.

In some of the United States, where the disease exists continually to a greater or less extent, the wild animals have become infected. Such a condition enormously increases the risk of spreading the infection, and I need scarcely point out that should the disease ever obtain a foothold among the wild animals of northern Canada, it would be practically impossible to secure its eradication. A bulletin dealing with this disease prepared by Dr. Hilton is published as an appendix hereto.

ANTHRAX.

As will be seen from the statistics, anthrax has made its appearance in a few districts, none of the outbreaks having, however, been at all serious. The inoculation of exposed herds with the anthrax vaccine now manufactured at the laboratory of this branch seems to have been attended with most gratifying results. Owing to the insidious nature of the disease, however, and the modes of infection, it is advisable to inoculate at least once a year the animals on farms where it has at any time made its appearance.

The anthrax vaccine, as also that for the prevention of black-quarter, which are both prepared at the laboratory of the branch, are now supplied to stock owners at a nominal price of five cents per dose. But little of the former is required, I am glad to say, the latter, however, being in constant request. The communications received from persons using these preparations indicate that both are effective preventive agents.

RED WATER.

The resignation of Professor Bowhill, who had been entrusted with the investigation into the nature and cause of the Red Water among cattle, which has ever since the country was first settled, caused much loss and annoyance to owners in various parts of British Columbia, unfortunately interrupted the work of the branch in this direction. The task has now been assigned to Dr. Seymour Hadwen, First Assistant Pathologist, who has lately returned to the service, after spending considerable time in investigating diseases of this character in collaboration with Professor Nuttall, of Cambridge University. The information contained in this officer's interim report is of such a nature as to encourage the hope that it will in the near future be possible for cattle owners to successfully adopt preventive measures.

SWAMP FEVER.

The department was fortunate in being able during the winter just past to induce Dr. J. L. Todd, professor of pathology at McGill University, to undertake a special investigation into the nature and cause of the peculiar disease known as 'Swamp Fever,' to which is attributable serious mortality among horses in various low lying districts in the prairie provinces.

Through the kindness of the authorities at Macdonald College, accommodation was furnished there for the experimental animals required.

The report of Professor Todd is not yet to hand, but his established reputation and long experience in work of this class renders it more than probable that he will be able to throw much needed light on the nature of this hitherto obscure disease.

TUBERCULOSIS.

The policy of this branch in regard to bovine tuberculosis, since the time I assumed office, has, for various reasons, which need not now be further discussed, been of the most conservative character. It is evident, however, that it will, in the near future, be necessary to take some definite action with a view to bringing this treacherous and widespread malady under effective control. The fact that, although many attempts have been made, no country has, as yet, been able to formulate a practical and successful policy with this object in view is, of course, very discouraging, but I am inclined to think that public opinion has now reached such a point as to render definite official action not only advisable but absolutely necessary.

The position of Canada in this matter is no worse, and, in fact, is somewhat better than that of many communities which have hitherto tried to solve the problem, inasmuch as of the many attempts at legislation which have been made in different countries, the majority have utterly failed of their object, while in the others the benefits derived have been less of a practical than of an educational nature.

The disease exists to a greater or less extent among the cattle of Canada, particularly among those kept under highly artificial conditions, and the returns of the Meat Inspection Division also indicate its prevalence among swine, especially in districts where these animals are closely associated with cattle or fed on the by-products of the dairy. If, however, the cattle of the country were once free from the disease, our swine would immediately share in the immunity, as in them it is almost invariably of bovine origin.

At the annual meeting of the American Veterinary Medical Association, which was held in Chicago in August, an International Commission on the Control of Bovine Tuberculosis was created, on the understanding that the movement would receive the moral, and, to some extent, the financial support, of the governments of the United States and Canada, as also of the various state and provincial governments and other bodies interested in the subject. This commission, of which I have the honour to be chairman, is composed of the following gentlemen, all of whom have, though in some cases very widely differing view points, studied long and carefully the great problem of the control of bovine tuberculosis:—

Hon. W. D. Hoard, Ft. Atkinson, Wisconsin, U.S.A.
Dr. J. R. Mohler, Washington, D.C.
Dr. V. A. Moore, Ithaca, N.Y.
Dr. M. P. Ravenel, Madison, Wis.
Dr. E. C. Schroeder, Washington, D.C.
Hon. W. C. Edwards, Ottawa, Canada.
Mr. J. W. Flavelle, Toronto, Canada.
Dr. C. A. Hodgetts, Ottawa, Canada.
Dr. F. Torrance, Winnipeg, Canada.
Mr. T. W. Tomlinson, Denver, Col.
Dr. Hurty, Indianapolis, Ind.
Mr. P. Cudahy, Chicago, Ill.
Dr. H. R. Reynolds, St. Paul, Minn., secretary.

It will be noted that among them are representatives of the dairy, stock breeding, and packing industries; that the veterinarians are of different varieties, some being engaged in scientific research, while others are occupied in practice or in veterinary sanitary work. It will be observed that there are also two public health officers, representing respectively Canada and the United States.

This commission has already held two meetings during the year. The first of these took place at Buffalo, N.Y., December 13 and 14, 1909, and the second at Detroit, Mich., on March 1 and 2, 1910.

It is too early as yet to speak with any great certainty as to the official outcome of its deliberations, but it is reasonable to hope that a body constituted as is this commission will be able to formulate such a policy as, while sound, practical and conservative, will enable us to make some forward movement against bovine tuberculosis instead of marking time as we have until now been doing.

STAFF.

Several minor changes have been made in the personnel of the staff during the past year, the resignation of Professor Bowhill, F.R.C.V.S., who had for some time been engaged in investigating red water among cattle in British Columbia, being regretfully accepted. Speaking generally, the locations of the various officers are practically the same, allowance being made, of course, for the additions rendered necessary by the extension of the work of the branches.

Dr. J. A. Couture, Superintendent of the Animals' Quarantine Station at Point Levis, was, in the month of August, also appointed the representative of the Live Stock Branch in the Province of Quebec. Owing to Dr. Couture's long and faithful service on behalf of the various French Canadian Stock Breeders' Associations, and the regard in which he is held by their members, this appointment was a very popular one, and there is no doubt that much benefit will accrue to the department from the new connection thus created.

Mr. W. H. McNish was added to the staff of inspectors engaged in the Live Stock Branch in carrying on the work of the Record of Performance.

Early in the year it was found necessary to place Inspector E. A. Bruce, V.S., Travelling Inspector in the Meat Inspection Division, in charge of an establishment in western Canada, R. E. Murray, V.S., being appointed Travelling Inspector in his stead.

Owing to the death of Mr. F. E. N. Boulter, Inspector of Canneries, which I regret to report occurred early in the year, and later the resignation of Mr. R. Bowlby, who had been employed in a similar capacity, it was found necessary to appoint two new Inspectors of Canneries, Mr. W. J. Flynn, and Mr. C. S. McGillivray being engaged.

Several lay inspectors were also appointed during the year, while the following veterinarians were added to the Meat Inspection staff:—

Belanger, A. A., M.V.
Bishop, F. C., V.S.
Cook, R. H., V.S.
Guy, J. O., M.V.
Harrison, J. R. N., V.S.
Macfarlane, T. W. R., V.S.
MacMillan, D., V.S.
Moon, W. J., V.S.
Marriott, W. H., V.S.
Pomfret, H., V.S.
Pringle, J. H., M.R.C.V.S.
Reid, N. W., M.V.
Townsend, Geo., D.V.S.
Wingate, F. L., V.S.

My own time during the past year has been, as usual, very fully occupied. Owing to the illness of Dr. Hilton, which, beginning in June, continued for the greater part of the year, it was possible for me to leave Ottawa only for very brief periods.

In August it fell to my lot, in response to an invitation from the Canadian Medical Association, to address that body at its annual meeting in Winnipeg. During the same week I contributed to the Agricultural Section of the British Association, then also in session in Winnipeg, a paper on 'Some Economic Aspects of the Western Cattle Trade.'

In September I attended the meeting of the American Veterinary Medical Association, which was held in Chicago. At this meeting the International Commission on the Control of Bovine Tuberculosis, of which mention has already been made in this report, was created, and later it was necessary for me, as chairman of this commission, to be present at its meetings held in Buffalo, N.Y., and Detroit, Mich.

I also attended the Winter Fairs at Guelph, and Ottawa, and the meetings of the various Breed Associations, which took place in Toronto and Montreal during the month of February, my attendance being also necessary at the annual meeting of the National Live Stock Record Board and several meetings of the Record Committee. I was also present at the annual meeting of the Ontario Veterinary Association and at the closing exercises of the Ontario Veterinary College.

With reference to this institution, I may add that, with your approval, two members of the departmental staff, Drs. Pringle and Walker, have been, with a view to the effective training of veterinarians for official work, authorized to deliver courses of lectures at the college, the subjects with which they deal being those of most importance to the department.

QUARANTINE.

The extension of the quarantine stations at points on the International boundary has been rendered necessary by the present policy of closely inspecting all live stock entering Canada, and especially that of submitting horses from the United States to the mallein test. At many points, especially at those where intending settlers enter in the greatest numbers, largely increased accommodation has been furnished. It is, however, a matter of no little difficulty to secure the effective guarding of the boundary, particularly in the prairie country, although there is reason to hope that, with the co-operation of the other departments interested, it will shortly be possible to considerably improve existing arrangements.

STOCK CARS AND YARDS.

I am pleased to be able to report the adoption of a comprehensive policy in connection with the thorough cleansing and disinfection of all railway cars used for the conveyance of live stock in the Dominion.

The great extent of the country to be covered and the widely varying conditions to be met, rendered it a matter of considerable difficulty to perfect the arrangements necessary to securing the object in view. Repeated consultations with the various railway authorities led to an understanding by which all empty stock cars entering principal railway centres in the Dominion are cleansed and disinfected under the supervision of special inspectors. This arrangement having been found to work satisfactorily its provisions were rendered effective by embodying them in a ministerial order, the enforcement of which is now compulsory.

It is also the duty of the officers of the branch to see that the various stock yards, as well as the principal cattle markets throughout the Dominion are maintained in a clean, comfortable and sanitary condition. Safety from disease infection is, of course, the principal object in view, but it is gratifying to be able to report that shippers of live stock universally appreciate the new conditions, while the reduced suffering and additional comfort of the animals are not to be disregarded.

ANTHRAX.

The following outbreaks were reported and dealt with during the year:—

Province.	Outbreaks.	Animals Quarantined.
Quebec	2	54
Ontario	4	94

In Quebec the two outbreaks were in the Labelle district.

In Ontario outbreaks were dealt with in the districts of Dundas, Grenville, Victoria and Haliburton and Russell respectively.

386 doses of anthrax vaccine were supplied from the Biological Laboratory.

BLACK QUARTER.

13,469 doses of blackleg vaccine were shipped from Ottawa in addition to that sold by druggists throughout the Dominion.

RABIES.

308 premises were quarantined on account of the prevalence of rabies in the adjacent districts, distributed as follows:—

County or District.	Premises Quarantined.
Ontario—	
Brant	9
Durham	7
Elgin	4
Haldimand	5
Huron	18
Halton	1
Hamilton	3
Kent	22
Lambton	1
Middlesex	65
Norfolk	5
Oxford	7
Perth	67
Peel	1
Simcoe	2
Waterloo	23
Wentworth	9
Welland	21
Wellington	10
York	23
Saskatchewan—	
Assiniboia	1
Alberta—	
Red Deer	4
	308

SHEEP SCAB.

In Ontario 98 animals on four premises were found to be affected with sheep scab, involving the quarantine of 228 sheep on 13 premises, distributed as follows:—

County.	Affected.	Quarantined.
Kent	18	18
York	80	210

In British Columbia 24 affected sheep were quarantined on one premises and subsequently released after treatment.

MALADIE DU COIT.

Thirty-seven animals, valued at $5,130, were slaughtered as being affected with this disease, at a cost of $3,419.98, distributed as follows:—

Saskatchewan.

District.	Suspected and quarantined.	Slaughtered.
Prince Albert	1	..
Qu'Appelle	1	..
Regina	1	..
Alberta.		
Lethbridge	4	4
Medicine Hat	68	8
Macleod	1	3
Calgary	98	13
Red Deer	93	9
	267	37

Value, $5,130; compensation, $3,419.98.

HORSE MANGE.

Province.	Outbreak.	Animals. Affected.	Animals. Quarantined.
New Brunswick	23	31	32
Quebec	71	116	158
Ontario	3	3	4
Manitoba	6	15	22
Saskatchewan	14	64	177
Alberta	35	81	452
British Columbia	11	23	197
	163	333	1,042

8,681 horses and 90 mules were inspected on being presented for shipment from the quarantined area in Alberta and Saskatchewan.

CATTLE MANGE.

In Saskatchewan 37 outbreaks of cattle mange were detected. involving the control of 31,960 cattle, 474 of which were found to be diseased.

In Alberta 146 outbreaks were detected, involving the control of 116,040 cattle, only 1,470 of these, however, were found to be affected.

In British Columbia 58 cattle were quarantined on suspicion and subsequently released.

22,044 cattle were inspected on being presented for shipment from the quarantined area in Alberta and Saskatchewan.

162,967 cattle were inspected in Winnipeg on arrival from points west thereof, all suspected animals (17) being forbidden export east.

TUBERCULOSIS.

269 cattle were tested on being imported into Canada, 9 of which reacted, 2 were classed as suspicious and 258 proved healthy.

567 cattle were tested for export, 24 of which reacted and 539 successfully withstood the test, 4 being classed as suspicious.

2,566 cattle were tested by private practitioners with tuberculin supplied by this department, 284 of which reacted, 57 were classed as suspicious and 2,225 proved to be healthy.

With regard to this general testing it must be borne in mind that in many cases the existence of tuberculosis is suspected in a herd before tuberculin is applied for, and the proportion of reactors cannot be cited as that obtained from indiscriminate testing.

All reactors were permanently earmarked by a veterinary inspector in cases where the owner did not voluntarily destroy them.

HOG CHOLERA.

ONTARIO.

Twenty outbreaks of hog cholera occurred in Ontario in which 589 hogs, valued at $5,781, were destroyed in the undermentioned counties at a cost of $3,853.93 in compensation.

Nineteen premises were also quarantined on suspicion, involving the control of 279 hogs.

One hog, valued at $12, was also destroyed for purposes of examination, at a cost of $8, but no evidence of hog cholera was found.

County.	No. of Outbreaks.	Hogs Destroyed.
Russell	15	169
York	1	351
Nipissing	3	63
Halton	1	6
Total	20	589

In Quebec one outbreak of hog cholera occurred in Wright county, in which 12 hogs were destroyed, without compensation. Two premises were also quarantined on suspicion, involving the control of 19 hogs.

BRITISH COLUMBIA.

Thirty outbreaks occurred on the Pacific coast in which 526 hogs, valued at $4,856.21, were destroyed, involving an expenditure of $3,233.72 in compensation.

Two premises were also quarantined on suspicion, 35 hogs being involved.

In the Dominion, therefore, 1,127 hogs were destroyed as diseased, at a cost of $7,087.65 in compensation.

GLANDERS.

DOMINION.

627 { 8 killed on inspection; 545 " 1st test; 70 " 2nd test; 4 " 3rd test } valued at $73.030. at a cost of $48,686.01.

285 showed clinical symptoms.

24,330 horses were tested with mallein, of which 619 reacted and were destroyed. Of the 619 reactors, 277 showed clinical symptoms of glanders at or during the test.

184 horses are under control for retest.

Of the above 627 horses slaughtered, 37 were killed without compensation as being diseased when imported into Canada.

Prince Edward Island.

One horse was tested and proved to be healthy.

Nova Scotia.

40 horses were tested and proved to be healthy.

New Brunswick.

104 horses were tested and proved to be healthy.

Quebec.

61 { 2 killed on inspection; 58 " " 1st test; 1 " " 2nd test } valued at $7,165.00 at a cost of $4,776.58

37 showed clinical symptoms.

540 horses were tested with mallein, of which 59 reacted and were destroyed. Of the 59 reactors 35 showed clinical symptoms of glanders at or during the test.

No horses are under control for retest.

Of the 61 horses slaughtered—

61 { 10 were in the electoral district of Terrebonne.
1 " " Rouville.
9 " " Montcalm.
2 " " Dorchester.
13 " " Wright.
3 " " Bellechasse.
2 " " Chicoutimi and Saguenay.
1 " " Quebec East.
4 " " Quebec.
4 " " L'Assomption.
7 " " Nicolet.
2 " " Shefford.
1 " " Two Mountains.
1 " " Joliette.
1 " " St. Hyacinthe. }

Ontario.

9 { 8 killed at 1st test; 1 " " 2nd test } valued at $1,010. at a cost of $673.32

7 showed clinical symptoms of glanders.

685 horses were tested with mallein, of which 9 reacted and were destroyed. Of the 9 reactors, 7 showed clinical symptoms of glanders at or during the test.

No horses are under control for retest.

Of the 9 horses slaughtered,

6 were in the electoral district of Thunder Bay and Rainy River.
1 " " " Lennox and Addington.
1 " " " Muskoka.
1 " " " Prescott.

Manitoba.

70 { 1 killed on inspection, 60 " 1st test, 8 " 2nd test, 1 " 3rd test } valued at $8,087. at a cost of $5,391.27

39 showed clinical symptoms .

4,503 horses were tested with mallein, of which 69 reacted and were destroyed. Of the 69 reactors 38 showed clinical symptoms of glanders at or during the test.

22 horses are under control for retest.

Of the 70 horses slaughtered—
5 were killed in the electoral district of Dauphin.
41 " " " Selkirk.
3 " " " Provencher.
1 " " " Souris.
12 " " " Macdonald.
8 " " " Portage la Prarie.

Saskatchewan.

386 { 4 killed on inspection, 339 " 1st test, 43 " 2nd test. } Valued at $46,219. At a cost of $20,812.33.

156 showed clinical symptoms.

13,475 horses were tested with mallein, of which 382 reacted and were destroyed. Of the 382 reactors, 152 showed clinical symptoms of glanders at or during the test.

127 horses are under control for retest.

Of the 386 horses slaughtered—
34 were in the electoral district of Battleford.
50 " " " Regina.
75 " " " Moosejaw.
51 " " " Mackenzie.
62 " " " Qu'Appelle.
22 " " " Assiniboia.
18 " " " Saskatoon.
28 " " " Prince Albert.
17 " " " Humboldt.
29 " " " Saltcoats.

Alberta.

97 { 1 killed on inspection, 76 " 1st test, 17 " 2nd " , 3 " 3rd " } Valued at $10,134. At a cost of $6,755.85.

43 showed clinical symptoms.

3,433 horses were tested with mallein, of which 96 reacted and were destroyed. Of the 96 reactors, 42 showed clinical symptoms at or during the test.

35 horses are under control for retest

Of the 97 horses slaughtered—

16 were in the electoral district of Medicine Hat.
9 " " " Red Deer.
3 " " " Macleod.
59 " " " Strathcona.
4 " " " Calgary.
6 " " " Edmonton.

British Columbia.

4 killed on 1st test; valued at $415; at a cost of $276.66.

3 showed clinical symptoms.

1,549 horses were tested with mallein, of which 4 reacted and were destroyed. Of the 4 reactors 3 showed clinical symptoms of glanders at or during the test.

No horses are under control for retest.

Of the 4 horses slaughtered—

2 were in the electoral district of Kootenay.
1 " " " Victoria.
1 " " " Yale and Cariboo.

NUMBER OF HEALTHY HORSES TESTED.

(Includes import tests.)

	1st test.	2nd test.	3rd test.	4th test.
Prince Edward Island	1	..	..	..
Nova Scotia	40	..	..	..
New Brunswick	104	..	..	..
Quebec	436	42	3	..
Ontario	658	18	..	..
Manitoba	4,156	238	16	2
Saskatchewan	11,582	1,328	51	..
Alberta	2,911	341	44	11
British Columbia	1,498	46	1	..
Total	21,386	2,013	115	13

DISEASED IMPORTS, 1909-10.

Port.	Number of horses in infected shipments.	Number of shipments.	Number of horses diseased.	Country of origin.	Action.
St. Stephen, N.B.	1	1	1	U.S.	Returned.
Sarnia, Ont.	1	1	1	"	"
Fort Frances	2	1	1	"	"
Emerson, Man.	117	17	22	"	4 destroyed. 18 returned.
Gretna	46	10	15	"	Returned.
Bannerman	23	5	3	"	1 destroyed. 2 returned.
North Portal, Sask.	663	125	143	"	25 destroyed. 118 returned.
Wood Mountain	27	7	7	"	2 destroyed. 5 returned.
Big Muddy	39	7	7	"	Returned.
Willow Creek	12	1	2	"	"
Coutts, Alta	14	2	5	"	"
Twin Lakes	10	3	3	"	"
Gateway, B.C.	10	2	2	"	"
Rossland	10	1	1	"	"
Nelson	3	1	2	"	"
Midway	2	1	1	"	"
Bridesville	14	1	3	"	"
Osoyoos	6	2	6	"	"
Huntingdon	12	2	3	"	"
Total	1,012	190	228	.....	.....

One cow was refused admission from the United States at Rouse's Point, Que., being affected with tuberculosis, one at Rossland and two at Huntingdon, B.C. One horse was also refused admission at Osoyoos, B.C., on account of the suspected existence of dourine.

IMPORT TESTING.

17,916 horses were tested on arrival from the United States and allowed to proceed to their destination.

Entered at	Number.
Charlottetown, P.E.I.	1
Halifax, N.S.	15
Sydney	1
Yarmouth	16
St. John, N.B.	22
St. Stephens	8
Woodstock	19
McAdam Jct.	19
Edmundston	5
St. Leonards	3
Debec Jct.	6
Aroostook Jct.	21
Comins Mills, Que.	13
Lake Megantic	2
Coaticooke	2
Beebe Jct.	42
Sherbrooke	74
Highwater	23

Entered at	Number.
Abercorn	11
St. Armand	13
Noyan Jct	6
Lacolle	11
Athelstan	11
St. Agnes de Dundee	9
Cornwall, Ont	9
Prescott	24
Morrisburg	4
Brockville	5
Kingston	3
Cobourg	2
Toronto	5
Niagara	45
Bridgeburg	86
Windsor	176
Sarnia	99
Sault Ste. Marie	8
Fort Frances	115
Rainy River	19
Emerson Man	2,629
Gretna	1,047
Snowflake	60
Bannerman	281
Manitoba General	53
North Portal, Sask	9,464
Marienthal	70
Wood Mountain	205
Big Muddy	130
Willow Creek	315
Saskatchewan General	10
Pendant d'Oreille, Alta	277
Coutts	695
Twin Lakes	182
Alberta General	14
Gateway, B.C	72
Kingsgate	693
Rossland	25
Nelson	22
Grand Forks	58
Midway	15
Myncaster	15
Rykerts	34
Osoyoos	128
Bridesville	59
Huntingdon	194
Keremeos	48
White Rock	44
Vancouver	40
Victoria	84
Total	17,916

SESSIONAL PAPER No. 15b

IMPORT INSPECTIONS FROM EUROPE FROM APRIL 1, 1909, TO MARCH 31, 1910.

	Horses.	Cattle.	Sheep.	Swine.	Yak.
Halifax, N.S.	44		2	1	
St. John, N.B.	371		50	3	6
Quebec, Que.	8	217	3,332	11	
Rouse's Point, Que.	15	2			
Montreal, Que.	1,636				
Bridgeburg, Ont.	3				
Victoria, B C.			1		
Total...—	2,077	219	3,385	15	6

PURE BRED IMPORTS FOR THE YEAR ENDING, MARCH 31, 1910.

HORSES AND ASSES.

Breed.	Great Britain.	United States.	Elsewhere.	Total.
Clydesdale	1,033	23		1,056
Shetland	374			374
Percheron	39	147	17	203
Shire	105	4		109
Hackney	94	2		96
Thoroughbred	5	68		73
Standard Bred		42		42
Suffolk	32			32
Belgian	6	24		30
Hunter	17			17
Welsh Pony	8			8
German Coach		4		4
French Coach		4		4
Morgan		4		4
Donkey	3			3
Polo Pony	3			3
French Draft		2		2
Total	1,719	324	17	2,060

PURE BRED IMPORTS FOR THE YEAR ENDING MARCH 31, 1910.

CATTLE.

Breed.	Great Britain.	United States.	Total.
Jersey	92	22	114
Holstein	.....	98	98
Guernsey	51	13	64
Ayrshire	62	2	64
Hereford	2	47	49
Red Polled	.....	22	22
Shorthorn	12	4	16
Angus	.....	4	4
Total	219	212	431

PURE BRED IMPORTS FOR THE YEAR ENDING, MARCH 31, 1910.

SHEEP.

Breed.	Great Britain.	United States.	Elsewhere.	Total.
Hampshire	1,552	1	.....	1,553
Shropshire	923	7	.....	930
Cotswold	202	.....	.....	202
Oxford	199	1	.....	200
Dorset	196	3	.....	199
Lincoln	154	.....	1	155
Southdown	65	.....	.....	65
Dartmoor	55	.....	.....	55
Leicester	24	.....	.....	24
Romney Marsh	3	.....	13	16
Cheviot	6	.....	.....	6
Merino	.....	4	.....	4
Suffolk	4	.....	.....	4
Kerry Hills	2	.....	.....	2
Total	3,385	16	14	3,415

PURE BRED IMPORTS FOR THE YEAR ENDING, MARCH 31, 1910.

SWINE.

Breed.	Great Britain.	United States.	Total.
Duroc Jersey	.....	17	17
Hampshire	.....	11	11
Chester White	.....	9	9
Berkshire	5	3	8
Yorkshire	3	3	6
Lincoln	5	.....	5
Tamworth	2	.....	2
Total	15	43	58

GOATS.

Angora	.....	2	2

SESSIONAL PAPER No. 15b

IMPORT INSPECTIONS FROM UNITED STATES AND NEWFOUNDLAND FROM APRIL 1, 1909, TO MARCH 31, 1910.

———	Horses.	Mules.	Cattle.	Sheep.	Swine.	Goats.
Charlottetown, P.E.I	1					
*a*Halifax, N.S	19			23		3
Sydney	78				1	
Yarmouth	20			4		
St. John, N.B	30		3		7	5
St. Stephens	20		1			
Woodstock	26					
McAdam Junction	42		5			1
Edmundston	5					
St. Leonards	3					
Debec Junction	8		2			
Aroostock Junction	22	2				
New Brunswick, general	2					
Comins Mills, Que	18		1			
Lake Megantic	3					
Coaticook	2					
Stanstead	56		22			
Sherbrooke	133	4	39	12	2	
Mansonville	96					
Abercorn	11		7			
St. Armand	49	2				
Noyan Junction	45	2				
Rouses Point	179	3	5		1	2
*b*St. Johns	315	24				1
Montreal	2					
*c*Athelstan	40	3	28	1		
St. Agnes de Dundee	46		232			
Cornwall, Ont	12		3			
Kingston	18		4			
Prescott	165	1	8			
Morrisburg	4					
Brockville	10		27			
Cobourg	3					
Toronto	5					
Niagara Falls	230	5	54	7		9
Bridgeburg	1,123	11	12		9	
*d*Windsor	652	2	25	19	12	9
*e*Sarnia	739	9	34	213	11	1
Sault Ste. Marie	17	1	5	2		
Rainy River	18		31			
Fort Frances	184	2	12			
Emerson, Man	4,086	564	1,222	304	1	7
Gretna	1,312	492	441	54		
Bannerman	864	18	178	8		
Snowflake	66	1	21			
Manitoba general	53		70			
North Portal, Sask	13,146	871	6,801	85	26	14
Wood Mountain	496	4	331			
Big Muddy	405	13	27			
Willow Creek	373		360			
Marienthal	88	2	20			1
Saskatchewan, general	9					
Pendant d'Oreille, Alta	287					
*f*Coutts	1,140	20	138	1,908		1
Twin Lakes	814	3				
Alberta, general	7					
Gateway, B.C	67	4				5
Kingsgate	954	57	116	2,208		245
Rossland	28		129	443		
Nelson	52	6	159	50		19
Rykerts	37					
Grand Forks	76		90	141	2	
Midway	17		52			
Myncaster	22		8	1,130		
Keremeos	49		12	627		

*a*1 Ass. *b*6 Buffalo. *c*4 Camels. *d*5Elk, 1 Burro. *e*3 Zebra, 3yak, 22 camels.
*f*218 Buffalo.

IMPORT INSPECTIONS FROM UNITED STATES AND NEWFOUNDLAND FROM APRIL 1, 1909, TO MARCH 31, 1910—*Continued.*

	Horses.	Mules.	Cattles.	Sheep.	Swine.	Goats.
Bridesville	62	.....	8	794	.....	.....
Osoyoos	247	2	4	2,481	.....	.....
Huntingdon	334	4	198	27	.....	1
New Westminster	.....	.....	12	1,931	.....	.....
White Rock	843	8	70	1,899	.....	3
Vancouver	176	1	1	17,241	.....	.....
Victoria	417	16	5	5,641	.....	1
Nanaimo	.....	49	.....	.....	.....	.....
White Horse	54	.....	1,333	560	.....	.....
Total	31,032	2,206	12,366	37,813	72	328

ANIMALS INSPECTED FOR EXPORT FROM APRIL 1, 1909, TO MARCH 31, 1910.....

	Horses.	Mules.	Cattle.	Sheep.	Swine.
Halifax to Great Britain	1	.....	116	.....	.....
St. John to Great Britain	34	.....	9,088	.....	.....
Montreal to Great Britain	84	.....	96,639	1,405	.....
Inspected at Montreal for shipment to Great Britain via. Boston and Portland	.....	.....	14,547	.....	.....
Toronto to Great Britain	.....	.....	38,494	1,346	.....
Niagara Falls to Great Britain	.....	.....	154	.....	.....
Bridgeburg to Great Britain	.....	.....	131	.....	.....
North Portal to Great Britain	.....	.....	428	.....	.....
Montreal to South Africa	.....	202	6	211	.....
Halifax to South Africa	.....	.....	.....	2	.....
Toronto to West Indies	.....	.....	356	506	.....
Halifax to St. Vincent	.....	.....	2	.....	6
Halifax to Jamaica	.....	.....	.....	283	.....
Halifax to Bermuda	47	.....	489	382	10
Halifax to Barbados	33	.....	.....	.....	.....
Halifax to Trinidad	10	.....	.....	14	.....
Halifax to St. Kitts and St. Lucia	1	.....	1	1	1
Halifax to Demerara	1	.....	.....	1	1
Halifax to Turks Island	.....	.....	.....	6	.....
Halifax to Newfoundland	2	.....	2	.....	.....
Sydney to Newfoundland	174	.....	662	26	2
Charlottetown to Newfoundland	24	.....	1,793	1,948	20
Bayfield and Mulgrave to Newfoundland	86	.....	858	519	.....
Halifax to St. Pierre and Miquelon	2	.....	13	.....	3
Sydney to St. Pierre and Miquelon	.....	.....	163	245	1
Toronto to United States	.....	.....	22	16,860	50
Bridgeburg to United States	.....	.....	.....	28,626	.....
Total	499	202	163,964	52,381	94

SESSIONAL PAPER No. 15b

ANIMALS REJECTED AT THE FOLLOWING PORTS FROM APRIL 1, 1909, TO MARCH 31, 1910.

Port.	Cattle.	Sheep.
Halifax, N.S	1	.....
St. John, N.B	9	.....
Montreal, Que	484	1
Toronto, Ont	184	.....
Bridgeburg, Ont	19	.....
Total	697	1

Of the above, 122 cattle at Montreal, 110 at Toronto and 1 at Halifax were rejected for actinomycosis and one for suspected mange at Montreal. The rest of the animals were suffering from lameness or injuries received during transportation and showed no indication of contagious or infectious disease.

MEAT INSPECTION.

The results of the constant care and watchfulness bestowed on the Meat Inspection Service ever since its inception, namely three years ago, are beginning to make themselves apparent. The packers and the public generally are rapidly adapting themselves to the new conditions, and, although there is, of course, still much room for improvement, it is gratifying to be able to report that the work is being carried on effectively and without friction.

While unfortunately the limitations of the service prevent its application to establishments other than those engaged in export or interprovincial trade, it has been the means of creating a strong sentiment in favour of the regulation of the slaughter and preparation of meats on the part of various municipal authorities throughout the country. This feeling, which is undoubtedly due almost entirely to the thoroughness of the inspection service of this Branch, is rapidly making itself felt in a number of different communities, and it is probable that in the very near future precautions similar to those insisted on by this Department will become general throughout the country. The condition of affairs which would thus be created is one greatly to be desired not only on account of the great reduction in the danger to human life, which would follow, but also because of the fact that, under existing conditions, the proprietors of establishments under inspection are daily subjected to unfair competition from dealers, who, being free from official supervision, make but few condemnations, and therefore undoubtedly dispose of much diseased and unsound meat.

I am satisfied that once the Canadian public has become seized of the situation, they will insist upon the adoption by the various municipal authorities throughout the country, of a much more thorough system of dealing with butchers, and the meat trade generally, than has hitherto been tolerated.

It does not appear to me that there is any need or likelihood of conflict.

We are setting a fairly high standard, and all that is required is for the municipal authorities to adopt, under the legislation now existing, regulations somewhat similar to ours, with the view of rendering unmarketable, diseased or otherwise unsound meats, which, under present conditions, cannot enter establishments engaged in export or interprovincial trade.

The first and most important step in this direction will, it is needless to say, be the providing of public abattoirs, to be conducted under inspection methods similar

to those required by the Meat and Canned Foods Act, especially as regards the admission either of live animals or their carcases.

The sooner the private slaughter house is abolished altogether, the better for all concerned, as most of the objectionable meats placed on the market emanate from these undesirable and unsanitary places.

The trade in home-killed dressed carcases will also, for similar reasons, gradually be wiped out of existence, and although the abolition of this form of meat disposal will probably cause some temporary dissatisfaction among farmers, matters will soon adjust themselves, and the profits to the producer will be in no way lessened, although the livers and other offal hitherto utilized by the household will be no longer available.

The municipal abattoir is a modern necessity, and must come.

There are many among us, not yet old, who can well recollect when the number of hospitals in Canada could almost be counted on the fingers, and when a proposal to erect an institution of this kind in a small town was looked upon as indicating a mild form of insanity.

How many of the communities now possessing modern and up-to-date hospitals would be satisfied to do without them?

The same will be found true of the abattoir, and if no other argument could be advanced in favour of the Meat and Canned Foods Act than the fact that it has aroused and is arousing public opinion on the great and important question of a sanitary meat supply, this would, in my opinion, fully justify its being placed on the statute books.

I am glad to be able to report that during the year just passed there has been a decided improvement in the conditions attending the packing of fruits and vegetables. This improvement may be credited almost entirely to the supervision of those officers of the Branch who are responsible for the inspection of the establishments engaged in this industry. Without going into details, it may be frankly stated that in many of these places the need for official supervision was very evident, although in others, the conditions were not at all discreditable.

The various establishments engaged in the preparation and sale of condensed and preserved milk and cream have also been receiving considerable attention at the hands of our inspection staff. In all these different lines a gradual, but marked, improvement is taking place, and it is hoped that within the near future the Department will be able to vouch for any Canadian product, the preparation of which is dealt with under the provisions of the Meat and Canned Foods Act.

SESSIONAL PAPER No. 15b

ESTABLISHMENTS under Inspection, March 31, 1910.

No.	Name.	Place.	Inspectors.
1	Fowler's Canadian Co., Ltd.....	Hamilton.....	T. M. Pine, V.S. A. C. Ramsay, V.S. J. Edgecombe.
2a	George Matthews Co., Ltd.....	Hull, P.Q.....	H. H. Ross, V.S. W. H. Marriott, V.S. J. Terrance.
2b	Geo. Mathews Co., Ltd.....	Brantford.....	W. Kime, V.S.
26c	Geo. Matthews Co., Ltd.....	Peterborough.....	W. A. Henderson, V.S. W. J. Moon, V.S.
25	Montreal Abattoir Co.....	Montreal.....	F. H. S. Lowrey, V.S. R. D. Orr, V.S. E. G. Lemieux, M.V. J. R. Young. W. H. Pethick, V.S.
4b	Davies, Limited.....	Montreal.....	J. W. Porter, V.S. W. H. James, V.S. H. Mizener.
5	Laing Packing & Provision Co ..	Montreal.....	J. W. Symes, V.S. F. A. Walsh, V.S. H. Macey.
22	Montreal Union Abattoir.....	Montreal.....	L. J. Demers, M.D., M.V. C. E. Derome, M.V. N. W. Reid, M.V. A. J. G. Hood, M.V. J. Briere.
24	Wm. Clark.....	Montreal.....	A. W. Beach, V.S.
25	N. K. Fairbanks Co.....	Montreal.....	C. D. Bancroft, D.V.S.
4a	Wm. Davies Co., Ltd.....	Toronto	J. H. George, V.S. J. E. Morse, V.S. A. A. Belanger, M.V M. W. Everett.
6	Park Blackwell Co.....	Toronto	A. R. Torrie, V.S. D. R. Bone, V.S.
7	Harris Abattoir Co.....	Toronto	A. C. Walker, V.S. D. A. Irvine, V.S. J. R. Thompson, V.S. T. W. R. Macfarlane, V.S. Dennis Brown.
28	W. Wight & Co.....	Toronto	J. B. White, V.S.
8	D. B. Martin Co.....	West Toronto.....	F. Fisher, V.S. W. A. Hodgins.
9	Gunns Limited	West Toronto.....	J. A. McLeish, V.S. F. L. Wingate, V.S.
4c	Davies Packing Co.....	Harriston.....	C. J. Johannes, V.S.
10	F. W. Fearman Co., Ltd.....	Hamilton.....	S. Ransom, V.S. W. A. Morrin, D.V.S.
11	Ingersoll Packing Co.....	Ingersoll.....	T. H. Richards, V.S. E. R. Farewell, V.S.
13	Whyte Packing Co.....	Stratford.....	C. E. Edgett, V.S.
14	Collingwood Packing Co.....	Collingwood.....	W. R. Bell, V.S.
16	Wm. Ryan, Co....	Fergus.....	G. C. Brownridge, V.S.

ESTABLISHMENTS under Inspection, March 31, 1910—*Continued.*

No.	Name.	Place.	Inspectors.
27	Tillsonburg Packing Co.	Tillsonburg	W. Lawson, V.S.
18	J. Y. Griffin Co.	Winnipeg	A. R. Walsh, V.S. F. C. Bishop, V.S.
19	Gordon, Ironsides & Fares	Winnipeg	J. D. Ross, V.S. J. R. English, V.S.
20	Gallagher, Holman & Lafrance	Winnipeg	A. E. Cameron, V.S. A. Hobbs, V.S. H. Pomfret, V.S.
21	Western Packing Co.	Winnipeg	F. C Jones, V.S. I. Christian, V.S.
23	P. Burns Company	Calgary	E. A. Bruce, V.S. M. Barker, V.S. T. G. McClelland.
18*b*	J. Y. Griffin & Co.	Edmonton	J. H. Shonyo, V.S. C. W. J. Haworth, V.S.
33	Dominion Meat Co.	Calgary	C. Maconachie, V.S.

—	Name.
Chief, Meat Inspection Division	R. Barnes, V.S.
Travelling Inspector	R. E. Murray, V.S.
In charge of Montreal	M. J. Kellam, V.S.
In charge of Toronto	L. A. Willson, V.S.
In charge of Winnipeg	C. D. McGilvray, M.D.V.
Special duty in Prince Edward Island	A. R. Douglas, D.V.S.
	Geo. Townsend, D.V.S.
Leave of absence	J. C. Reid, M.V.
	B. A. Beseoby, V.S.
	J. H. Pringle, M.R.C.V.S.
Inspectors of Canning Factories	W. J. Flynn.
	C. S. McGillivray.

SESSIONAL PAPER No. 15b

DISEASES FOUND ON POST MORTEM INSPECTION APRIL 1, 1909—MARCH 31, 1910.

Disease.	Cattle.			Sheep.			Swine.			Poultry.
	Carcases.	Portions.	Lbs.	Carcases.	Portions.	Lbs.	Carcases.	Portions.	Lbs.	Lbs.
Adhesions		959			290			679		
Abscess	6	17,874	69	56	95		8	992	174	
Actinomycosis	15	5,886					1	356	642	
Atrophy		14								
Bruises	205	6,640	621	31	408	63	20	1,671	5,672	
Burnt									30	
Cripples	34	72	49	11	14		31	2,735	2,733	
Cysts		8						17		
Congestion								150		
Cancer							1			
Cysticercus Bovis	154									
Cysticercus Cellulosae							179			
Cysticercus Tenuicollis					24			19		
Decomposition										558
Discoloration		1								
Dying Condition	3									
Dirty			270							
Dysentery	1									
Emaciation	58			111			12			
Enteritis	8			3			47			
Emphysema								292		
Hernia		2					4	34		
Hydremic Cachexia	8			14						
Immaturity	2,028			1						
Improper Bleeding	6			34			8			
Induration					4			24		
Jaundice	10			6			7			
Metritis	10			2			13			
Mucoid Degeneration	36									
Mammitis							5			
Necrosis		327		1	1,003		1	7,271		
Parasites		30,876		3	20,134	35	3	6,830		
Pericarditis	24			1			2			
Peritonitis	13			9			37			
Pleuritis	14			6			36			
Pneumonia	74			21			101			
Pyemia	111			41			181			
Pregnancy				1						
Renal Calculus		3								
Sexual Smell							165			
Skin Diseases							14	51		
Sarcoma	3									
Synovitis		1								
Sour	2		59,484	1		4,439	1		96,160	
Tuberculosis	1,697	11,327		2	287		1,788	206,442		
Tumour	6	66		1	3		4	161		
Various	12	123		20	17		41	242		
Total	4,538	74,189	60,493	376	22,279	4,537	2,710	227,966	105,411	558
Found Dead	69			152			696			
Total	4,607	74,189	60,493	528	22,279	4,537	3,406	227,966	105,411	558

SUMMARY.

April 1, 1909, to March 31, 1910.

Total number of cattle slaughtered	384,789
Carcases of cattle 'condemned'	4,538
Percentage of cattle 'condemned'	1·17
Portions of cattle 'condemned'	74,189
Total number of sheep slaughtered	257,049
Carcases of sheep 'condemned'	376
Percentage of sheep 'condemned'	·15
Portions of sheep 'condemned'	22,279
Total number of swine slaughtered	1,261,496
Carcases of swine 'condemned'	2,710
Percentage of swine 'condemned'	·22
Portions of swine 'condemned'	227,966
Total number of animals slaughtered	1,903,334
Total number of carcases 'condemned'	7,624
Total number of portions 'condemned'	324,434
Percentage of carcases 'condemned'	·40

During the course of re-inspection, the following meats were condemned:—

—	Cattle.	Swine.	Sheep.	Poultry.
	Lbs.	Lbs.	Lbs.	Lbs.
Sour	59,484	96,160	4,439	.....
Decomposed	.....	.....	.....	558
Dirty	270	.....	.....	.....
	59,754	96,160	4,439	558

Total amount condemned on re-inspection 160,911 pounds.

A Comparison of Animals Slaughtered at Establishments under Inspection, during the years 1908-1909 and 1909-1910.

Cattle killed—	
1909-1910	384,789
1908-1909	298,241
Increase	86,548
Sheep—	
1909-1910	257,049
1908-1909	191,792
Increase	65,257
Swine—	
1909-1910	1,261,496
1908-1909	1,532,796
Decrease	271,300

SESSIONAL PAPER No. 15b

LIVE STOCK BRANCH.

SHEEP INDUSTRY.

In the work of the Live Stock Branch perhaps more attention has been paid during the year just past to the development of the sheep industry than to any other question with which this branch is called upon to deal.

During the last ten years the number of sheep in the Dominion has been steadily diminishing in spite of the fact that other classes of farm stock, while not showing any inordinate increase, have maintained their numbers in reasonable proportion to the general growth and prosperity of the country.

This falling off in the number of sheep kept has been the subject of much concern to those most interested in this class of live stock, and many different opinions as to the cause, or causes, responsible for this condition have been advanced both in the agricultural press and in the meetings of the various sheep breeders' associations.

Among the causes most frequently mentioned may be cited the continued low price of wool, the prevalence of dogs in eastern Canada. and of wild, sheep-killing animals in the west, the irregularity of mutton prices, due to alleged combinations among dealers, and the increased attention paid to dairying and other special lines of husbandry.

While probably all of these conditions are responsible to a greater or less extent for the falling off above referred to, I cannot refrain from expressing the opinion that the principal reason for the retrogression is unquestionably the fact that our Ontario breeders of pure-bred sheep, having succeeded in finding a profitable market, especially for their lambs, in the United States, have paid practically no attention to the development of sheep farming in Canada. As a consequence of this, flock masters in many districts have either, owing to indifference, or lack of information, used the services of common grade rams, only too frequently of their own breeding. This has led to a deterioration in quality as regards both mutton and wool, followed naturally by a lessening of profits, and a consequent reduction in size, as well as in the number of grade flocks.

The benefits resulting from the sales of pure-bred rams, which were held in Nova Scotia and Prince Edward Island during the fall of 1908, were so evident that it was resolved, with your approval, to continue the work in 1909, at the same time extending it to some other parts of the Dominion. With the co-operation of breeders of pure-bred flocks a series of sales was accordingly held during the autumn of 1909. Three sales were held on the Ontario side of the Upper Ottawa Valley, three being also held on the Quebec side, the country adjacent to the river in both provinces being admirably adapted for sheep farming, although the class of sheep hitherto produced has been very inferior in character.

Ten sales were held in the central and eastern portions of the province of Quebec, while three took place in Prince Edward Island. One car load of the various breeds was sold by auction in British Columbia. In all, four hundred pure-bred sheep, the great majority of which were males, were placed within easy reach of farmers wishing to improve their flocks. These sheep were supplied by breeders who received the exact price at which their various entries were sold, the expenses of the transportation, feed and care of the animals, as well as the expenses of selling being defrayed by this branch.

It was last year much easier than usual to secure sheep in this way because of the quarantine of thirty days imposed in June, 1908, by the United States authorities

on Canadian breeding sheep entering that country, which led to large numbers of good rams being left on hand. Had these breeders in past years devoted more attention to the upbuilding of a Canadian market for pure-bred stock, this action on the part of the United States authorities would have injured them but little, whereas under the artificial conditions under which they found themselves many were forced to sell good lambs at butchers' prices.

In the prices obtained at these sales there was a wide variation, not always accounted for by the quality of the stock offered, it being found that in districts where the home flocks were of fair quality, good animals fetched good figures, while in localities where the home flocks were of low quality, even the best sheep offered brought but little more than mutton prices. This circumstance showing, as it does, the benefits resulting from a knowledge of the advantages of keeping good sheep constitutes a valuable object lesson and indicates the benefits which would result if the breeders of pure-bred sheep were to undertake and maintain energetic measures with the object of introducing good blood into communities well suited for sheep raising, but in which the business has never been conducted on intelligent lines.

The holding by the Department of these sales was highly approved both by the breeders and by the farmers purchasing the stock, and I have no hesitation in recommending that, if possible, similar sales should be held during the coming season. The United States quarantine having now been removed, it is to be feared that our breeders will, as usual, dispose of any surplus stock to buyers south of the line, thus still further retarding the development of a Canadian market, proof against the quarantine and customs regulations of any foreign country.

FRENCH CANADIAN RECORDS.

The revised French Canadian Stud Book has now been closed, the work of re-inspecting foundation stock having been completed during the year. No animals will now be registered other than the offspring of duly registered stock, and such individual stallions of other breeds as may be specially approved by the association. In this connection it is interesting to note that at the annual meeting of the association held in Montreal in February last it was decided to admit to registration in the French Canadian Stud Book during the next five years stallions of the Thoroughbred, Morgan, Standard-bred and Hackney breeds, on condition that any individual offered for entry should be approved on inspection by a special committee named for the purpose, such committee to include the Live Stock Commissioner of your Department, or such other officer as might be named in his place.

At the St. Hyacinthe Exhibition a special show of French Canadian horses was held, at which a number of excellent animals competed for the prizes given under your authority by the Live Stock Branch. This is the second of these special shows held under the auspices of this Branch the first having taken place at St. Johns, Quebec, in 1908. As before one-half of each award was withheld for one year, to be paid on condition that the winning stallions should be retained in the province of Quebec, and winning mares have been bred to these winning stallions.

RECORD OF PERFORMANCE.

Steady progress has been made during the year in what may be termed extension of the work of the Record of Performance. The demands for the services of the officers engaged in this work have increased to such an extent that in addition to the appointment of another regular officer it has been found necessary to make special arrangements for inspectors in some of the more distant provinces. In fact, animals are now undergoing test in every province of the Dominion, except Manitoba and Saskatchewan. A second report embodying the records of cows qualified since July, 1908, was recently issued.

EDUCATIONAL WORK.

As usual, a great deal of educational work has been done, not only by the regular officers of the Branch but by many other live stock experts especially engaged for the purpose. In all the provinces, except Ontario, Quebec and Manitoba the Branch has co-operated with the provincial departments of agriculture in arranging for series of meetings addressed by gentlemen specially qualified to deal with live stock subjects. In Quebec, where no special provincial organization for this purpose is in existence, I found it necessary to arrange for the meetings without assistance from the provincial department.

There is great need, as well as ample opportunity, for the intelligent development of agricultural knowledge in the province of Quebec; the people are ready and anxious to absorb information, and it is therefore a subject for regret that the provincial authorities have, so far, failed to realize the importance of creating the organization necessary for its dissemination.

The speakers sent out by this Branch are, as a rule, practical and experienced men capable of imparting much useful knowledge on any phase of animal husbandry. The reports which they are required to furnish at the conclusion of each tour, and which are carefully fyled, form a most reliable index of the work done, as well as a useful source of information for the guidance of future operations.

Judging classes are frequently an interesting phase of the various meetings, the demonstrations on live animals by capable judges being most attractive, especially to the younger farmers interested in live stock.

Many expert live stock judges have also been supplied by the Branch during the year for the various fairs throughout the Dominion. This system, which has now been followed for a number of years, consists in placing at the disposal of the Provincial Department of Agriculture, and, in some cases, of various associations, the best available men from every province at a cost not greater than if local judges were employed. In addition to the impartiality of judgment thus secured there is a distinct advantage in having the animals accurately placed in such a way as to impress those interested with the differences in quality between the individuals shown.

The judges sent out by the branch have definite instructions to explain, when asked, their reasons for placing the awards. The intercourse promoted between the stockmen of the various provinces by the visits of these judges, and the interchange of ideas thus brought about have proved of great indirect value in assimilating the views and standards of those who, although widely separated geographically, are interested in the same breeds of stock. Especially in the younger districts also the advice of the experienced men sent out by the Branch is often of great assistance to those engaged not only in organizing fairs and exhibitions, but in the inauguration of other methods of distributing sound agricultural knowledge.

WINTER FAIRS AND AUCTION SALES.

Financial aid has been continued to winter fairs in the maritime provinces and in the west, as also to provincial auction sales of pure bred stock, when these are conducted in accordance with the conditions imposed by the Department.

PUBLICATIONS.

Several publications have been issued during the year; among these may be mentioned the special report on the cattle trade in western Canada, in which the various conditions adversely affecting this trade, as at present conducted, are very fully discussed, some suggestions for their improvement being also offered. This report is printed as an appendix hereto.

A directory of the live stock breeders throughout the Dominion has also been issued, this action being deemed advisable on account of the constant demands for information as to where pure bred animals of the different breeds might be obtained.

The report of the Commission of Canadian Swine Breeders, which, during the summer of 1909, visited Great Britain, Ireland and Denmark to investigate the conditions affecting the industry in this country, has also been published for distribution, its preparation having been entrusted to Mr. J. B. Spencer, of my staff, who accompanied the commission as secretary and editor. The demand for this report, which is a most attractive publication, containing, as it does, a mass of useful and interesting information, has so far exceeded your expectations that it has been necessary to publish a second and larger edition.

While the work of the Live Stock Branch has not, during the year just passed, been distinguished by any sensational features, the ground has been thoroughly covered, while careful preparation has been made for future activity in regard to various matters of vital importance to the live stock interests of the Dominion.

In conclusion I am pleased to be able to report that the arrangement, under which the Health of Animals and Live Stock Branches are operated under one official head, has continued to work very satisfactorily, effort and expense being considerably reduced in the performance of duties common to both Branches.

I have the honour to be,
Sir,
Your obedient servant,

J. G. RUTHERFORD,
Veterinary Director General and Live Stock Commissioner.

To the Honourable
The Minister of Agriculture,,
Ottawa, Ont.

APPENDIX No. 1.

GEORGE HILTON, V.S.,

Chief Veterinary Inspector.

Ottawa, March 31, 1910.

Sir,—I have the honour to submit herewith my report for year ending March 31, 1910.

My duties have been confined to your office, with the exception of an official visit to Niagara Falls, Bridgeburg, Windsor, Sarnia and London, and a lengthy absence through illness, extending from June 23, 1909, to January 15, 1910.

I left Ottawa for Manitoba, Saskatchewan and Alberta on March 22 to discuss matters of importance with the inspectors in charge of these provinces,

I have the honour to be,
Your obedient servant,

GEORGE HILTON.

The Veterinary Director General,
Ottawa.

APPENDIX No. 2.

R. BARNES, V.S.

Chief Meat Inspection Division,

Ottawa, March 31, 1910.

Sir,—I have the honour to submit my annual report for the year ending March 31, 1910.

In the Meat and Canned Foods Division of your Branch the work has been, generally speaking, most satisfactory. Steady progress has been made in a quiet but effective manner. Your officers stationed in the different establishments throughout the Dominion which come within the operation of the Meat and Canned Foods Act, to whom are entrusted the actual work of inspection and the details inseparable therefrom, have performed their duties in a fair and conscientious manner, provoking little criticism on the part of the managements who have, in most instances, shown a commendable spirit in their evident desire to comply with the requirements of the law.

During the past year a number of new establishments have been placed under inspection, fourteen of which conduct an export business only during the fall and winter months, owing to their not being equipped with modern chilling and cold storage facilities.

The sanitary condition of all the establishments under inspection has been well maintained and many decided improvements have been made.

The public, though somewhat slow to appreciate the full importance of meat inspection and their safety in purchasing only meat and meat food products which have passed such inspection and which bear the inspection legend, are beginning to give this matter serious thought, and a great number of people are insisting that they be supplied only with such meat.

With the object of demonstrating the value of the work being carried on by this division, exhibits of diseased and condemned as well as healthy and approved meats, were made at Toronto and Ottawa during the annual fairs. A number of officers were in attendance to answer questions regarding the different conditions exhibited, and, judging from the interest shown and the questions asked by the thousands of visitors who daily viewed the exhibits, the result will be an increased demand for healthy meats, slaughtered, handled and prepared under proper sanitary conditions. This demand, I trust, will in the near future be so great that the private and uninspected slaughter-houses, conducted as the majority of them are at the present time, will become an evil of the past.

Meat inspection has demonstrated clearly that tuberculosis exists among our food animals to a far greater extent than was previously known. The percentage of dairy cows, sent to establishments for slaughter, showing evidence of this disease, is such as will warrant serious thought as to possible ways and means for its prevention and possible eradication. Other diseases and conditions found are not numerous, nor of such a nature as to require any special comment.

The amount of bacon and hams exported during the year shows a large decrease. This was naturally to be expected owing to the fact that 271,300 less hogs were slaughtered under inspection than during the previous year, and also to an increased home consumption consequent upon the large number of settlers entering the Dominion. This had the effect of producing a very material increase in the price paid to breeders. In the month of March it reached almost a record price, $10.75 being paid live weight.

An increased number of other meat food animals were slaughtered, yet a steady high price was maintained throughout the year.

The statistics show a continued decrease in the condemnations for immaturity, a much better class of calves coming forward for slaughter than was the case during the first year of inspection under the Act. The percentage of condemnation for all causes shows little change, the greatest difference being found under tuberculosis.

The vacation granted to the officers of this division as the result of representations made by you to the minister on their behalf, has been greatly appreciated and has had a very beneficial effect on the health of those who were able to take advantage of the privilege. The nature of the work and the conditions which necessarily surround the slaughter of food animals, especially hogs, and the preparation of their carcases and products, are trying and irksome.

At the examinations held throughout the Dominion, sixty-seven (67) veterinary surgeons presented themselves in order to qualify for positions as inspectors, in accordance with the requirements of the Act. A fair percentage were successful in passing, of whom the majority have been appointed; yet, owing to resignations and dismissals, the staff has not increased to such an extent as might at first appear.

FRUIT, VEGETABLES AND MILK.

Early in the year, this division suffered a severe loss by the death of one of its inspectors, Mr. F. E. N. Boulter, whose work was carried on after the appointment of another inspector.

The officers employed in inspection of the many factories engaged in the processing, canning, bottling, evaporating, drying, and otherwise preserving, of fruit, vegetables and milk for food purposes have been selected with care, and on account of the practical knowledge which they possess, acquired by years of close observation and

contact with the work. As a consequence an improvement is shown in the quality of the products prepared, and in the sanitary conditions under which the operations are conducted. This improvement has been made in a quiet and unostentatious manner, and reflects credit not only upon the officers for the tact and diplomacy with which they have carried out their instructions, but also upon the managements of the different factories for the co-operation and willingness shown by them in their endeavour to carry out the requirements of the Act.

Such establishments as are not yet in the condition desired are, I believe, doing their best to comply with the requirements, but in some cases they are badly handicapped by their situations and surroundings, and, perhaps, lack of finances. I trust, however, that in spite of these inconveniences, the plants mentioned will very soon be brought into such condition as to conform readily to our regulations.

I have the honour to be, sir,
Your obedient servant,

ROBERT BARNES,
Chief, Meat Inspection Division.

APPENDIX No. 3.

A. E. MOORE, D.V.S.,

Chief Travelling Inspector.

Ottawa, March 31, 1910.

Sir,—I have the honour to submit herewith my report for the year ending March 31, 1910.

My duties this year as Chief Travelling Inspector have been, as in the past, largely confined to dealing with special cases and to a general supervision of the outside work throughout the eastern provinces.

It is very gratifying to be able to report that, with the exception of rabies in western Ontario, no very serious outbreaks of contagious diseases have occurred in the east during the year.

Glanders appears to be well under control. The local veterinarians and others now recognize the importance of our endeavours to stamp out this dangerous disease, and have reported numerous suspected cases. On investigation a large number of these cases have, fortunately, proved to be due to other diseases.

No glanders was found in the maritime provinces during the year, although several suspected cases were investigated.

A few outbreaks of hog cholera have occurred, especially among hogs in the neighbourhood of cities, and which were fed on uncooked city garbage. 602 hogs were killed on 21 premises, and the compensation paid for them was slightly less than $4,000.

Three small outbreaks of sheep scab occurred in Western Ontario.

A few cases of anthrax were seen, but the disease was confined to old infected centres.

Mange in horses has been quite prevalent this year, especially in parts of the Eastern Townships of Quebec. In nearly all cases this disease has been spread by horse traders. It was introduced some years ago by bronchos from the west.

The outbreak of rabies in Western Ontario threatened to be a very serious one. Owing to the great distances that rabid dogs sometimes travel during certain stages

of the disease, it was impossible for our inspectors to effectually trace and deal with the origin of the different outbreaks. Since the muzzling orders have come into force, however, the disease seems to have already somewhat abated.

Hæmorrhagic septicæmia in cattle has again made its appearance. Several quite serious outbreaks occurred in the Eastern Townships of Quebec, and a few cases were seen in Eastern Ontario. Our records show that 74 cattle have died during the year on 15 farms, and there were undoubtedly quite a number of outbreaks which were not reported.

During the year I have visited many of the posts along the international boundary, and have reported from time to time the results of these visits. The following are the posts visited:—Halifax, N.S., St. John, N.B., Quebec, Sherbrooke, St. Johns and Lacolle, Que., Cornwall, Brockville, Prescott, Cobourg, Niagara Falls, Windsor and Sarnia, Ont.

GLANDERS.

During the year I visited 15 places where glanders was suspected, and tested 36 horses, 4 of which reacted.

21 horses tested in Ontario, 1 was diseased.

11 horses tested in Quebec, 3 were diseased.

4 horses tested in Nova Scotia, none diseased.

The 4 diseased horses were found on three premises. The causes of suspicion on the other 12 premises were nasal gleet, diseased teeth, distemper and purpura hæmorrhagica.

The Ottawa market has been visited nearly every market day during the year, and no cases of glanders have been seen.

From time to time a few cases of glanders have been found in Wright county, Que., near Maniwaki, and, as it was impossible to trace the origin of many of these cases, I considered it important that an investigation be made. Acting on your instructions, therefore, during a slack time I proceeded with Inspector Alf. Dufresne to this district. After some trouble we finally found several cases of glanders; as I was satisfied that there were still other cases, but no actual reports to go by, I considered it advisable to make a house to house inspection of all the horses in this district. I then arranged the work and instructed Inspector Dufresne to carry it out. As a result of this inspection, which took about six weeks, 13 cases of glanders, mostly clinical, involving 6 different premises, and 14 cases of mange belonging to 10 different farmers, were found. This amply paid us for our trouble.

As there were still some doubts as to the prevalence of glanders in the Chicoutimi and Saguenay districts, Quebec, you instructed me to have an investigation made. While in Quebec last fall I arranged with Inspector Gauvin to make a general inspection of the horses in this district, paying special attention to the lumbering concerns and town horses. Dr. Gauvin spent several weeks at this work and examined a great many horses, but no cases of any contagious disease were found.

HOG CHOLERA.

In August it was reported that hogs were dying near Ottawa. These hogs were being fed on uncooked city garbage. After a careful investigation, I found the disease to be hog cholera. All the places where this garbage was fed were immediately visited, the hogs carefully inspected and the premises ordered thoroughly cleansed and disinfected, as some of them were in a very unsanitary condition. As a result of this investigation 169 hogs were killed, 54 died; 15 premises being involved.

Owing to our careful watching of the Ottawa outbreak, the disease was noticed in its early stages, which enabled us to allow many hogs to be dressed for food before they became infected, thus saving the Department in compensation.

When examining this garbage at Ottawa and Toronto, besides finding almost everything in it one could imagine, I found a great many uncooked portions of pork, especially sausages. Whole strings were often found, and in Toronto, frequently a bushel of spoiled sausages would be seen in the garbage from some of the large hotels.

In the Ottawa outbreaks all cases originated in those fed on the city garbage.

In September, in company with Inspector Perdue, I found 351 valuable hogs showing marked symptoms of hog cholera on one farm near Toronto. Fifteen had died previous to our visit. These were also garbage fed hogs.

I also found the disease on a farm near Oakville, Ont. Six hogs were ordered killed and 15 died previous to my visit.

Suspected cases were reported from Guelph, Stamford and near Toronto, which on investigation, I found to be due to other causes, especially exposure and gastric troubles.

SHEEP SCAB.

During the winter three small outbreaks of scabies were discovered in Western Ontario, all three of which traced back to cull sheep resold from the Toronto market at the time when there was a little scabies in different parts of the province.

In one outbreak near Galt the infection did not spread from the original farm, and the sheep were all slaughtered.

In another outbreak near Ridgetown the infection was traced to one farm, but fortunately the diseased sheep were not in contact with any others in this neighbourhood.

The third outbreak was found in King township, York county; four small flocks were affected, all originating from one source.

All the diseased sheep were immediately twice dipped in lime and sulphur and the premises have been thoroughly cleansed and disinfected.

According to your instructions in May and June, I visited Manitoulin Island in company with Inspector Henderson and arranged to have a general inspection made of all sheep on the island. This work was considered advisable, as for some time it was strongly suspected that the Manitoulin sheep were responsible for some of the outbreaks in other parts of the province, and more especially as the disease was traced to the island from the outbreak of 1905.

Inspector Henderson made a careful inspection of all the sheep, but no further trace of the disease was discovered. From reports of the residents of Manitoulin the disease was never seen there prior to 1905. All the stock yards at the wharves all around the island were thoroughly cleansed and disinfected.

DIPPING OF SHEEP FOR EXPORT TO THE UNITED STATES.

Acting on your instructions I proceeded to Western Ontario for the purpose of instructing all our salaried Inspectors with reference to the dipping of sheep for trading purposes, which are for export to the United States, this dipping to be done in accordance with the new United States regulations.

RABIES.

Since the muzzling orders of February 5th came into force, my time has been largely devoted to dealing with rabies in the western peninsula of Ontario. I have personally dealt with a number of outbreaks, and have repeatedly travelled over the territory included in the muzzling order, calling on the veterinarians and municipal authorities in many of the towns and villages. I found that generally the orders were being well enforced, and that hundreds of worthless dogs have been destroyed, which alone will be a great benefit to the country.

According to your instructions I interviewed the Indian agents and chiefs at the following Indian reserves:—Hagersville, Sutton, Sarnia, Forest and Walpole Island, and fully explained to them the regulations, the kinds of muzzles to be used, and any other information that they desired.

As the Indians are under the direct control of the Dominion government, the agents are responsible for the enforcement of the muzzling orders.

TUBERCULOSIS.

I have tested 19 cattle for export to the United States this year belonging to four exporters—reacted and was earmarked.

Testing of herds which have been placed under the supervision of the Branch:—Five herds, comprising 276 cattle were tested by me this year, 3 reacted and 1 was suspicious; the reactors were earmarked.

During the year I earmarked 11 tuberculous cattle which were tested with tuberculin furnished by this Department to local veterinarians.

MANGE IN HORSES.

When we were making the general inspection of horses in the Maniwaki district, 14 cases of mange were found on 10 premises. These were ordered treated in the oil and sulphur dip; the treatment was done under our personal supervision, with the result that the two applications cured every case and they were all released in a short time.

I also dealt with two cases in the city of Ottawa, both of which came from the Gatineau district.

SUSPECTED DOURINE.

Two years ago a stallion which was imported from France, was being extensively bred to mares at Boucherville, Quebec. Shortly after service many of the mares became affected with a venereal disease and several died. Dr. S. Hadwen examined some of the mares and pronounced the disease coital exanthema. This year it was again reported that some serious disease was prevalent in mares in this neighbourhood, and that many were dying.

According to your instructions I visited Boucherville and made a thorough investigation into this matter. I found the reports greatly exaggerated; the disease was coital exanthema, and deaths were due to complications with influenza, which was prevalent at the time. I examined the stallion and a large number of mares. By all reports exanthema has been in the neighbourhood for some years.

ANTHRAX.

Only two small outbreaks of anthrax came to my notice this year; two farms near Guelph, Ont., owners each losing one cow. These two herds were immediately vaccinated, the two carcases burned and the premises thoroughly disinfected, and no further losses were reported.

The other outbreak was on two adjoining farms near Morrisburg, Ont.; 5 cows died. Both these premises have been infected for some years; the disease is supposed to have come from the State of New York, immediately across the river from Morrisburg, where anthrax has been prevalent for some time.

The carcases were burned and the stalls thoroughly disinfected and the remaining cattle immediately vaccinated, after which no further losses were reported.

BLACK QUARTER.

According to quite an alarming report that some disease was causing the death of cattle near Warkworth, Ont., I visited that place and found the disease to be black

quarter. According to the local veterinarian and others, this malady has been common in this locality for years. I explained the nature of the disease to the owners and advised vaccination.

HÆMORRHAGIC SEPTICÆMIA.

In September I visited Sherbrooke and in company with Inspector Whyte visited a farm near North Hatley, Que., where at the time of our visit 13 cattle had died. The symptoms presented and the post mortem lesions confirmed Dr. Whyte's diagnosis.

A few days after this a report was received from Renfrew, Ont., that cattle were dying, supposedly from anthrax. I visited Renfrew and found the disease was due to hæmorrhagic septicæmia. Five cattle died on two adjoining farms. I was informed by the local veterinarian that cattle died on the farms several years ago presenting the same symptoms. During the last of October it was reported that cattle were dying of some unknown disease in the neighbourhood of Sweetsburg, Que. In company with Inspector Whyte I visited Sweetsburg, and we found that the disease was hæemorrhagic septicæmia. At the time of our visit about 35 cattle died on 8 or 9 farms within a radius of 2½ miles.

In all of the above cases isolation of the cattle and a thorough cleansing and disinfection of the premises were advised.

INSPECTION OF ANIMALS IMPORTED INTO CANADA FROM THE UNITED STATES.

	Horses.	Mules.	Goat.	Buffalo.	
June 18..	315	24	1	6	Crossed at Lacolle, Buffalo Bill's show.
July 18..	1				Crossed at Cobourg, temporary stay.
Jan. 29..	2				Ottawa, exhibition purposes.

I have the honour to be,
sir,
Your obedient servant,

A. E. MOORE,
Chief Travelling Inspector.

The Veterinary Director General,
Ottawa, Ont.

APPENDIX No. 4.

C. D. McGILVRAY, M.D.V.

WINNIPEG, March 31, 1910.

SIR,—I have the honour to submit herewith report in connection with the Health of Animals, Branch in the province of Manitoba for the year ending March 31, 1910.

The Health of Animals' Branch here comprises three divisions, viz:—
Diseases Control Division.
Quarantine Inspection Division.
Meat Inspection Division.

The work performed by officers in connection therewith consists in carrying out the requirements of the various regulations relating thereto.

DISEASES CONTROL DIVISION.

The work in connection with this division consists in dealing with the control and eradication of diseases coming under the Contagious Disass of Animals Act, and the enforcement of the various requirements of the regulations relating thereto, as well also as the investigation of such other diseases and conditions as appear to be of sufficient importance to warrant same.

GLANDERS.

I am pleased to report that our efforts towards the control and eradication of this disease have met with gratifying success. The past year has been characterized by a very noticeable decrease in the number of outbreaks detected and dealt with, as well also as a marked decrease in the number of animals found to be affected and destroyed. No cases of glanders have been detected in this province now for a preceding period of about six months, although a considerable number of suspected animals have been inspected and tested without any being found to be affected.

During the past year I have inspected and submitted to the mallein test, and destroyed for glanders, the following number of horses:—

Sixty-six submitted to a first mallein test (this number includes 9 in the province of Ontario).

Eleven submitted to a second mallein test.

One submitted to a third mallein test.

Two destroyed as a result of a reaction to a first mallein test.

Two destroyed as a result of a reaction to a second mallein test.

One destroyed as a result of a reaction to a third mallein test.

Out of this total of 5 horses destroyed, 3 showed clinical symptoms.

IMPORT HORSES TESTED, IN ADDITION TO ABOVE.

Twelve submitted to a first mallein test, at destination.

Nine submitted to a second mallein test, at destination.

Of which number, one reacted and was destroyed without compensation.

GLANDERS STATISTICS FOR MANITOBA.

Summary showing total number of horses and mules tested and destroyed during year, by the various inspectors here:—

HORSES AND MULES SUBMITTED TO TEST.

First test, 712; second test, 115; third test, 17; fourth test, 3.

HORSES AND MULES DESTROYED FOR GLANDERS.

First test, 57; second test, 7; third test, 1; without test, 1; total, 66.

Total compensation allowed, $5,391.27, being an average of $81.68 each.

IMPORT HORSES AND MULES TESTED AT DESTINATION.

First test, 101; second test, 28; third test, 5.

IMPORT HORSES AND MULES WHICH REACTED TO TEST AT DESTINATION, AND DESTROYED WITHOUT COMPENSATION.

First test, 3; second test, 1.

MANGE OF HORSES.

During the past year mange has been detected affecting horses in different parts of the province. Affected and contact horses were placed under quarantine restrictions and owners were instructed as to proper treatment of affected animals as well as cleansing and disinfection of the premises.

The total number of horses inspected and placed under quarantine restrictions for mange by the various officers here during the past year comprised 22, of which 15 showed symptoms of mange. All of these animals were re-inspected from time to time, and have now become cured. At the present time no premises are under quarantine for this disease.

MANGE OF CATTLE.

Mange has not been detected affecting cattle in this province, except at the stock yards, among cattle coming from what is known as the mange area in the provinces of Saskatchewan and Alberta.

In accordance with the requirements of Ministerial Order No. 39, all cattle originating west of Winnipeg are inspected at the stock yards here, and cattle showing manifestations of mange are detained and allowed to be removed only under certificate for immediate slaughter. Cattle destined for points east of Winnipeg are only allowed to go forward after being carefully inspected and under an Inspector's certificate of health. Yards are cleansed and disinfected from time to time, as exigencies require.

During the past year the following number of cattle were inspected at the Winnipeg stock yards:—

99,842 destined to points east of Winnipeg and intended for export; 63,125 for local consumption, having Winnipeg as destination; total, 162,967.

Of this number 17 were found to be affected with mange.

CAR INSPECTION.

This is an important phase of our work. All empty stock cars, used in the transportation of live stock entering Winnipeg, unless showing evidence of being recently so treated, are cleansed and disinfected here, under the supervision of an Inspector.

DOURINE.

This disease has not yet been detected affecting horses in this province, though from time to time, our officers have inspected horses suspected of this disease, but which, upon examination, have proved to be suffering from some benign affection and not dourine.

TUBERCULOSIS.

Our work in connection with this disease is confined largely to cattle being exported to the United States, and the testing of any herds under the control of the Department.

TUBERCULOSIS STATISTICS.

CATTLE INTENDED FOR EXPORT TO THE UNITED STATES.

Eighteen were submitted to a first tuberculin test.

Of this number two reacted to the test and were officially ear-marked and exportation prohibited.

CATTLE AT BRANDON EXPERIMENTAL FARM.

Thirty-seven head of cattle were submitted to a first tuberculin test.
One head of cattle was submitted to a second tuberculin test.
All of which proved healthy.

Three hundred and eighty-seven head of cattle were tested in the province by practising veterinarians with tuberculin supplied by the Department, of which 128 reacted, and those not destroyed by the owners were ear-marked in accordance with the regultions by a regular officer of this Branch. Out of this number 324 were dairy cattle in the vicinity of Winnipeg, tested by the veterinarian of the Department of Public Health of the city of Winnipeg.

RABIES.

During the early part of 1909 an outbreak of rabies was reported affecting animals on the premises of a farmer, near the extreme western boundary of the province. Investigation substantiated the existence of the disease, and brought to light some interesting features. It would appear that during November, 1908, a dog on the premises of this farmer presented symptoms of rabies, and, after biting a number of animals, including horses, cattle and swine, was destroyed. In the course of about three weeks, a calf presented symptoms of rabies, and, in a few days thereafter succumbed. A week later a cow died after presenting manifestations of rabies. Subsequently, six other cattle, which had been bitten by the dog in question, became affected, and, after presenting symptoms of rabies, died therefrom. One horse, which had also been bitten, presented manifestations of rabies and succumbed to the disease. In all, the farmer in question lost on his premises, as a result of rabies, eight cattle, three pigs and one horse.

From information gathered, the period of incubation in the different species of animals would appear to have been extremely variable. In the case of pigs, the average period would be about thirty days. In the case of calves, under six months of age, it averaged from ten to twelve days. In mature cattle it was extremely variable. In the case of the first cow to become affected, the period of incubation was about three weeks, while the last to succumb did so on May 2, 1909, although it had been bitten by the rabid animal on November 29, 1908; the first symptoms were presented about three days prior to death, on or about April 28, so that in this case the period of incubation reached 150 days. The brain of this cow was submitted by me for examination purposes to the Provincial Bacteriologist, Dr. Gordon Bell, who confirmed the existence of rabies by the demonstration of negri bodies and animal inoculation.

In the case of the horse, which was bitten on November 29, 1908, it first presented symptoms on Friday, April 9, and becoming violent, broke its neck. The period of incubation therefore in this case reached 131 days. A portion of the brain material of this horse was forwarded and submitted to the pathologist of the Department for examination and inoculation purposes, and was reported as being positive for rabies, the period of incubation in the control animals (rabbits) being 93 days.

In this connection I think it of interest to append the Pathologist's report:—

'OTTAWA, July 15, 1909.

'SIR,—I have the honour to report that two rabbits inoculated with the material taken from the horse suspected of being affected with rabies on the premises of Mr. J——— J———, Sec...., Tp...., R...., on April 13 last, died to-day of rabies. One exhibited symptoms for six hours prior to death, and the other for about three hours, although, in the first instance, food was refused for the first time yesterday (24 hours before symptoms), and, in the latter, for the first time this morning. It will be

observed that the incubation period in these animals has been 93 days, which, in conjunction with the history of the horse, indicates that the virus was considerably attenuated.

'CHAS. H. HIGGINS,
Pathologist.'

No other cases were reported or detected, in this neighbourhood, or in any other locality in the province of Manitoba during the past year, and, from information gathered from the owner, I am inclined to the view that the source of infection in the case of the dog, originated in the adjacent province of Saskatchewan, where rabies was reported as then being in existence.

BLACK-LEG.

This disease is reported from time to time from certain sections of the province, where it appears to be more or less indigenous. When the true nature of the disease is established owners are recommended to resort to protective inoculation of susceptible animals, their removal from infected pastures, and the proper disposal of any carcases of animals which may have died from the disease. During the past year, we have supplied 322 doses of black-leg vaccine to owners for vaccination purposes.

Owners who resort to protective inoculation of cattle by means of the black-leg vaccine, report very favourably as to the immunity conferred.

In addition to duties in connection with the routine work of the control and eradication of diseases coming under the Contagious Diseases of Animals' Act, our attention has also been devoted, from time to time, to the investigation of other conditions which were deemed of sufficient importance, notably the occurrence of obscure febrile affections of horses, and the prevalence of sub-parotid tumours in cattle in certain districts, the latter of which is specially dealt with in report appended hereto:—

SUB-PAROTID TUMOURS IN CATTLE.

Circumscribed swellings occurring in the sub-parotid (throat) region in cattle, and familiarly known to cattlemen as 'wens' and 'lumpy jaw,' are of frequent occurrence here. Such swellings, though sometimes of actinomycotic or tubercular origin, have been observed to frequently arise from some other causes.

During the past season it was my privilege to investigate the occurrence of tumours affecting the throat region of cattle in the Nut Lake district of Saskatchewan, alleged to be actinomycosis. In the course of this investigation several interesting facts were brought to light. It was found that in some districts as high as 75 per cent of the cattle showed tumours in the sub-parotid or throat region. In one herd of 96 cattle, 70 were found to show swellings in this region, and I have since ascertained that similar conditions obtain in other localities.

From information gathered it would appear that such tumours make their appearance in cattle chiefly during the latter part of the winter and in the spring. They appear as circumscribed tumours (swellings) located in the sub-parotid region, affecting one or both sides. Those of small size frequently disappear of their own accord, while those of large size, when opened up and pus contents evacuated, heal up and disappear. If of large size, and left untouched, they frequently remain permanently as firm circumscribed tumours or lumps in the throat region. Sometimes they break externally, suppurate, and thus disappear. More frequently, however, the tendency is to remain as a circumscribed, firm tumour.

Cattle raisers in such districts have noticed these occurrences each year, with frequent regularity, and in disposing of their stock have often to do so at reduced prices, owing to the objection of buyers to the presence of such swellings.

Affected animals have been treated in many cases with potassium iodide, almost specific in the early stages of actinomycosis, but which, in this condition, has not been productive of affecting a cure. External vesication with various vesicants including proprietary blistering preparations known as 'lump jaw cure,' &c., has also been resorted to, but without beneficial results, and leaves extensive blemishes.

Operation upon affected animals reveals the lesion as a firm circumscribed tumour, in diameter from two to six inches with a dense fibrous capsule, having a cavity containing pus. Examination of the pus with a low-power microscope or lens, fails to reveal ray fungus granules, but may reveal small particles and shreds of grass.

In all cases, free opening of the swelling, evacuating pus contents and syringing with antiseptic solution, and treating as an open wound, effects a cure and disappearance of such enlargements.

At the outset, the marked prevalence of such conditions would seem peculiar, and is difficult to account for by cattle raisers in such districts. Examination of the hay fed during the winter months, may not reveal at first sight anything likely to give rise to such a condition, but when shaken, a number of small, fine, sharp pointed grasses are thrown down. Examination of the surrounding country, where cattle are pastured, and also of the land where hay supply is procured, shows a great prevalence of grass commonly called by cattlemen in such districts 'needle' or 'wire' grass. These grasses, while indigenous to a large portion of this western country, would not appear to grow to the same extent and in the same manner in all districts, which may account in some measure, for not always giving rise to this condition.

In the district referred to they grow to a height of from 12 to 24 inches, very stiff in the stem, and at the top there always projects a dry, sharp point of from one-half to one inch in length. When the hay is cut it is largely mixed with such grasses, and, when cured, in handling, the sharp point or bristle breaks off. Cattle being fed such fodder partake of a considerable number of these sharp pointed agents, which, no doubt, penetrate the fauces and pharynx, and thus give rise to the tumours in question.

Samples of pus material taken from such tumours, submitted to and examined by the Pathologist of the Department at Ottawa, failed to reveal evidence of actinomycosis. Specimens of the grassses likewise forwarded, and submitted to the Botanist of the Department, were identified as a variety of rush known as 'Juncus Balticus.'

Post-mortem observations of cattle slaughtered at abattoirs here, would support field observations as to the nature and causation of these tumours being other than actinomycotic, as their occurrence is confined to the sub-parotid region of the throat, while actinomycosis, here, shows a predilection of location for the maxilla bones, and, in a few cases, the tongue.

In a small number of cases, sub-parotid swellings in cattle have been found to be of tubercular origin, but this, however, does not appear to be a frequent cause of such swellings in this region.

From observations both in the field and post-mortem, it would appear that tumours affecting the throat region of cattle in this western country, frequently result from the penetration of the fauces and pharynx by sharp pointed grasses such as the one mentioned herein, 'Juncus Balticus,' and other grasses commonly known as 'Spear Grass' (Stipa Spartea) and 'Skunk Grass' (Hordeum Jubatum).

QUARANTINE INSPECTION DIVISION.

Under this division, which consists in the enforcement and carrying out of the requirements of the regulations relating to animals' quarantine, there are maintained animals' quarantine stations in Manitoba, situated at Emerson, Gretna and Bannerman. At each of these quarantine stations a regular officer of the Branch is stationed.

The equipment consists of a substantially fenced enclosure, and commodious, comfortable stable accommodation, well lighted and thoroughly ventilated. Caretakers are maintained, whose duties consist chiefly in keeping the yards and stable in a cleanly state and good repair, and the cleansing and disinfection of the yards and stables with limewash and carbolic acid, from time to time, as exigencies require.

In order to accommodate incoming settlers, I deemed it advisable to recommend to you that Snowflake be made an animals' inspection port, and this place was declared to be an animals' inspection port on or about March 1, 1910.

EMERSON QUARANTINE STATION.

This is located at Emerson, on the International boundary line, at a point where the Canadian Northern and Canadian Pacific lines of railway, and their American connections, intersect.

During the past year it was considered necessary and advisable to enlarge the accommodation at this point. There was erected an addition, 18 feet by 100 feet, to the present stable building, another stable building, 16 feet by 50 feet, thus largely increasing the stable accommodation, and also a building 22 feet by 14 feet, providing office accommodation for the Inspector and a waiting room for the use of incoming settlers whose horses are undergoing inspection.

The equipment of this station now consists of a fenced enclosure 205 feet in length by 100 feet wide, together with stable accommodation for about 100 horses; inspector's office and waiting room for settlers. There is also a covered-in shed, isolated, which is used for the detention of swine during the required period of quarantine. A new well has also been dug in the yards, and substantially cribbed, providing a sufficient supply of water for requirements.

During the past year there has been presented for entry and inspection at the station the following number of animals:—

Horses, 4,086; mules, 564; cattle, 1,222; sheep and goats, 311; swine, 1. Fees collected, $542.05.

2,274 horses and mules were submitted to the mallein test, of which 18 reacted and were refused entry, and 65 submitted to a retest.

Thirteen head of cattle were submitted to the tuberculin test, all of which proved healthy.

GRETNA QUARANTINE STATION.

This station is located at Gretna, on the International boundary line, conveniently situated between the Canadian Pacific railway and the Midland branch of the Great Northern railway, each of which line has a branch spur running into the quarantine station.

The equipment consists of a substantially fenced enclosure, 140 feet in length by 120 feet wide; stable, 100 feet by 30 feet, providing comfortable accommodation for 45 animals, which is well lighted and thoroughly ventilated.

During the past year suitable office accommodation was provided at the quarantine station for the Inspector.

During the past year there has been presented for entry and inspection the following number of animals:—

Horses, 1,312; mules, 492; cattle, 441; sheep and goats, 54; swine, nil;. Fees collected, $301.46.

1,033 horses and mules were submitted to the mallein test, of which number 15 reacted and were refused entry, and 18 submitted to a second test.

BANNERMAN QUARANTINE STATION.

This station is situated on the B. S. and H. B. branch of the Great Northern line of railway, at Bannerman, distant from the International boundary line about three and a half miles.

The equipment consists of a substantially fenced enclosure, 140 feet in length by 120 feet wide. Stable, 100 feet by 30 feet, providing comfortable accommodation for 45 animals, which is well lighted and thoroughly ventilated.

During the past year there has been presented for entry and inspection the following number of animals:—

Horses, 864; mules, 18; cattle, 178; sheep and goats, 8; swine, nil. Fees collected, $135.50.

256 horses and mules were submitted to the mallein test, of which number 4 reacted and were refused entry. Ten were submitted to a second test.

SNOWFLAKE AND MOWBRAY.

During the past year there has been presented for entry and inspection at these points, the following animals:—

Horses, 116; mules, 1; cattle, 70. Fees collected, $1.

110 horses and mules were submitted to the mallein test and, proving healthy, were allowed to enter.

SPRAGUE.

During the past year the following animals were presented for entry and inspection at Sprague:—

Horses, 3; cattle, 21. Fees collected, $3.

The three horses were submitted to the mallein test and proved to be healthy.

Summary showing total number of animals presented for entry and inspection at the various boundary points:—

Horses and mules inspected	7,456
Horses and mules tested	3,676
Horses and mules retested	93
Horses and mules reacting and refused entry	37
Cattle inspected	1,932
Cattle tested	13
Cattle reacting and refused entry	nil
Sheep and goats inspected	373
Swine inspected	1
Fees collected	$983 01

MEAT INSPECTION DIVISION.

This division of the work consists in the carrying out of the various requirements of the Meat and Canned Foods' Act and the regulations relating thereto.

Inspection is maintained at four establishments here which are engaged in an export trade in meat and meat food products, viz:—

The J. Y. Griffin Company, known as establishment No. 18.

Gordon, Ironside & Fares, known as establishment No. 19.

Gallagher, Holman & LaFrance, known as establishment No. 20.

The Western Packing Company, known as establishment No. 21.

An average number of ten inspectors have been stationed under this division during the past year, the entire time of these officers being devoted to the work.

All of which is respectfully submitted.

I have the honour to be, sir,
Your obedient servant,

C. D. McGILVRAY,
Inspector.

The Veterinary Director General,
Department of Agriculture,
Ottawa.

APPENDIX No. 5.

ARTHUR G. HOPKINS, B.Agr., M.D.V.

REGINA, March 31, 1910.

SIR,—I have the honour to present herewith my annual report for the year ending March 31, 1910.

The big inrush of settlers from the United States has materially increased the work and number of Inspectors at the boundary ports in Saskatchewan, especially at North Portal. During the preceding fiscal year a change was made in dealing with import horses, inasmuch as an effort was made to test with mallein all horses and mules immediately or very soon after their arrival in Canada, the testing being done at Moosejaw as well as at North Portal, the accommodation at that time at the latter point being insufficient. As a result a material saving in expense was ensured by lessening the amount of travelling by Inspectors and by preventing the wide dissemination of glanders infection. Before the close of the fiscal year 1909-1910, the completion of the new quarantine stables and yards rendered it possible for the Branch to do the testing at North Portal. The great rush of immigration takes place during March and April, as many as 1,600 horses being presented in a week. Inspector McMurtry was placed in charge of the testing at North Portal, and had associated with him Veterinary Inspectors Chester, Dufresne, Poole and Young. A large number of owners presented charts referring either to tests made by B. A. I. inspectors or to tests made by practitioners and endorsed by Bureau officials, according to the regulations.

The tests made by our officers at the boundary show that a large percentage of the reactors come from the Dakotas. Below are appended the inspection totals and fees collected at the various boundary ports in Saskatchewan:—

——	Horses.	Mules.	Cattle.	Sheep.	Swine.	Goats.	Fees.
Big Muddy	405	13	27	.....	.....	.....	182.50
North Portal	13,146	87	680	85	26	14	979.26
Marienthal	88	2	20	.....	.....	1	31.25
Willow Creek	373	0	360	.....	.....	.....	222.30
Wood Mountain	496	4	331	.....	.....	.....	222.35

Marienthal was opened in March, with Inspector G. H. Acres in charge as sub-collector of customs and Veterinary Inspector.

Glanders has, more than any other contagious disease of animals, engaged the attention of Inspectors of the Branch. I am pleased to note a growing appreciation of the value and reliability of the mallein test by farmers and others in the province, evidenced by the numerous requests for the tests which have been made to this office, which requests have been complied with when the work would permit. A number of suspected cases exhibiting nasal discharges have been reported, in several instances, by veterinarians, which, on investigation, have proved to be due to carious teeth. Laymen can be excused; it, however, indicates that many veterinarians have not had a training in the rudiments of veterinary dentistry, consequently the Department has been put to a lot of trouble and expense by this unfortunate lack of knowledge on the part of practitioners.

Reports received and forwarded by this office to headquarters indicate that any recrudescence of the disease in a neighbourhood is due to one of two causes, the introduction of an infected animal from the outside, or neglect to thoroughly disinfect the harness as well as the premises after an outbreak. The testing at the boundary, with the rejection of reactors, has cut down one source of infection for this disease. Investigations made by officers under my charge, as a result of outbreaks at such widely separated points as Saskatoon and Halbrite in shipments of branded horses brought to these points, indicate the ranges as another source of infection.

Inspectors Head and Young, when investigating and dealing with an outbreak of glanders in the Wolseley district, collected information from the widow of the late owner of the diseased animals which indicated that he had contracted the disease from his horses with fatal results, after protracted illness.

Mallein tests by field inspectors number 3,081 first tests, 1,021 retests (second), and 28 retests (third); 386 horses were ordered destroyed as reactors, valued at $46,219, on which $30,812.33 was awarded as compensation.

MANGE.

Outbreaks of this disease have been reported from time to time, in districts outside the mange area and the official treatment as prescribed in the regulations, ordered with beneficial results. Several shipments of horses presented by intending settlers have been rejected and returned by our officers at the boundary.

RABIES.

No reports of new outbreaks in the province have been received during the past fiscal year.

MALADIE DU COIT.

Fortunately no new outbreaks of this disease have been reported and it would appear that this province is free of this serious menace to the horse breeding industry.

ANTHRAX.

No cases of this disease have been brought to the notice of this office.

BLACK-LEG.

This disease is frequently brought to my notice by the demand for black-leg vaccine prepared by the Department. Vaccine has been sent out at the nominal cost of five cents per dose. Vaccination has also been recommended to many owners reporting deaths of young cattle with symptoms indicating black-leg.

From time to time cases of lump jaw (actinomycosis) and tuberculosis are reported but no action is taken beyond that set forth in the regulations. Tuberculin has been furnished free of charge to veterinarians on request of their clients, and any reactors reported were subsequently ear-marked by an officer of the Branch. The tuberculin test is apparently very seldom used in Saskatchewan. The test is not even demanded by municipal health officers administering city by-laws dealing with the inspection of milk and dairies; none of the cities in this province have, at present, a veterinary officer dealing with matters pertaining to the public health as affected by the consumption of meat and milk.

During the fiscal year inspection of the disinfection and cleansing of stock cars was, by your instructions, inaugurated at Moosejaw.

Swamp fever is rarely heard of, many of the so-called swamp fever cases proving to be typhoid influenza. This disease has caused several losses in some localities, where it apparently has not been thoroughly understood and properly dealt with.

All of which is respectfully submitted.

I have the honour to be, sir,
Your obedient servant,

A. G. HOPKINS,
Inspector.

To the Veterinary Director General,
Ottawa, Ont.

APPENDIX No. 6.

J. C. HARGRAVE, D.V.S.

Medicine Hat, Alta., March 31, 1910.

Sir,—I have the honour to submit herewith my annual report of the province of Alberta and portions of Saskatchewan and British Columbia for the year ending March 31, 1910.

The year just passed has been found by your Inspectors to be one of great activity and considerable progress has been made, although at times the staff has been inadequate.

The public, on the whole, display a willingness to co-operate with your officers in their work, although occasionally there is displayed an antipathy to our efforts in connection with mange.

One must admit that much remains to be done in the province, but if present rate of progress is maintained for two years more, the work of controlling and eradicating contagious diseases will not have been without gratifying results.

The work throughout the province has necessitated considerable travelling, but the exigencies of the work in the office has rendered it impossible to devote as much time as is really required in visiting the different portions of the province.

Early in the year you saw fit to place in my charge the mange infected area of Saskatchewan, which added very largely to the already large field of operation in connection with mange in cattle, in addition to which, in August, the boundary stations Gateway and Kingsgate in British Columbia, were transferred to this office.

During the year I have personally inspected 1,370 horses, 5 mules and 45 cattle, destined to points outside the province.

MALADIE DU COIT.

In my last annual report I predicted the early eradication of the disease, yet, the number slaughtered during the past twelve months was slightly in excess of last year, and during the fall and winter two fresh outbreaks were discovered, in the Calgary and Raymond districts, which, however, are being energetically handled, and although suspicion is directed against a large number, yet the number so far found infected is but a small percentage. Aside from these outbreaks, very few were slaughtered in the old infected districts.

In addition to the Inspectors who have in the past dealt with the disease, Dr. Watson, of the quarantine station, Lethbridge, has assisted very materially in the field work.

An effort was made to undertake the work of gathering the wild and estray horses ranging on the north side of the Red Deer and Saskatchewan rivers, which have run in that district for years without being gathered and which have been exposed to the infection of maladie du coit. No one, however, could be found to undertake the work so late in the year and it was therefore decided to postpone this work until next year, when the work could be commenced earlier in the season.

ALBERTA.

Number slaughtered, including four (4) ownerless	37
Value	$5,130 00
Compensation	3,419 98
Average valuation, stallions (1 grade, 3 registered)	262 50
Average valuation, mares (including 1 pure-bred)	140 69
Number suspected and quarantined	241

SASKATCHEWAN.

Number quarantined	3

It is quite evident that in the old infected centres one must expect occasional outbreaks for some time to come, as insidious cases are extremely difficult to detect, especially when you take into consideration the fact that it is found impossible to make re-inspection oftener than once in three months.

GLANDERS.

New centres of this infection are from time to time being discovered; particularly is this the case in the northern portion of the province.

These, as found, are dealt with as rapidly and energetically as possible, an effort being made to clean up each outbreak before proceeding to another.

Inspector Caldwell, of Edmonton, dealt in a creditable manner with an extensive outbreak in the Hardisty district, which had, unfortunately, existed for some considerable length of time before being detected.

Additional inspectors could be utilized in the northern portions of the province as I am confident that there is more cases of glanders in those parts than what have so far been detected.

The number of settlers' horses permitted to proceed to destination untested were not as large as last year, with the result that nearly all were located and tested, there remaining in the province on March 31, untested one hundred and seventy-three (173) head. Of those tested at destination, ten (10) head reacted.

The following figures denote the number of horses (native and settlers' separate) tested with mallein and the number destroyed during the year:—

GLANDERS STATISTICS.

British Columbia (Crow's Nest District).

Horses tested—	
Once	50
Twice	39
Thrice	1
Total tests	90
Horses slaughtered—	
On first test	2
Value 1	$150
Value 1	75

Alberta.

Native horses tested—	
Once	1,404
Twice	288
Thrice	28
Fourth	11
	1,731
Slaughtered—	
On first test	75
On second test	8
On third test	3
On inspection	1
	87
Total valuation of 86 head (Compensation withheld for one horse).	$10,134 00
Average valuation	117 83
Total compensation paid on 86 head	6,755 85
Average compensation	78 55
Horses seized by customs and tested once (included above).	
Settlers' horses tested—	
Once	659
Twice	298
Thrice	43
Total tests	1,000
Slaughtered—	
On first test	1
On second test	9
	10
Settlers' horses untested March 31, 1910—	
Untested	173
Returned to United States	14
Died after arrival	7
	194
Native horses awaiting retest March 31, 1910	129

MANGE.

It is again possible to report progress in the eradication of horse mange. No large herds have been found infected and the total number of horses quarantined during the year were 452, as against 2,828 for the year previous, of which only 81 presented symptoms of mange.

In certain districts where it formerly prevailed it has not made a reappearance, clearly demonstrating the efficiency of the official dipping solution and the measures adopted by your Inspectors.

In comparison with previous statistics almost as favourable a situation exists with respect to cattle mange. As previously mentioned the entire mange infected area was handled from this office necessarily demanding a great deal of attention as the work in the additional territory necessitated reorganization and was largely under the supervision of Inspector Morgan. The result of the year's operations within the area in Saskatchewan was very satisfactory and at the end of the fiscal year mange existed in one herd only east of range 20, this herd being reinfected by stock from Alberta.

I hope to be able to recommend the removal of districts 8 and 9 from the area by the end of the ensuing fiscal year as well as district 13, lying north of the Red Deer river and in which practically no mange has been found this year. Throughout the remaining portions of the area the number of cattle dipped almost equalled the total last year, but the number of infected herds were less, the difference being made up by a much larger number of cattle being classified as contact cattle, and in addition a much smaller percentage of cattle showing indications of mange were found in the infected herds, thus showing in addition to the good results in Saskatchewan and the satisfactory situation in district 13, that fair progress is being made throughout the whole of the mange infected area.

The lime and sulphur mixture still continues to give every satisfaction, giving better results than any other preparation.

STATISTICS for cattle mange, year ending March 31, 1910.

Number herds quarantined	461
Number cattle quarantined	135,197
Number cattle dipped twice	136,836
Number cattle dipped once only	6,156
Number cattle hand treated	627

STATISTICS for cattle mange, year ending March 31, 1910.

Premises quarantined	35
Number of horses quarantined and treated	452
Number of horses presenting symptoms of mange	81
Number of premises remaining in quarantine	14

TUBERCULOSIS.

The tuberculin test was applied to thirty-three (33) head of cattle by private veterinarians with tuberculin supplied by your Department through this office, and the reactors—four (4) in number—were ear-marked in accordance with the regulations.

BLACK QUARTER.

A very few cases have been reported throughout the province. Sales of vaccine to the extent of nine hundred and thirty (930) doses made during the year.

RABIES.

The Ministerial Order of March 3, 1909, put into effect as a result of rabies being detected in Red Deer and Innisfail, was maintained until midsummer.

This outbreak, you will remember, was discovered by Inspector Nyblett, in March, 1909, and was dealt with so successfully that the muzzling order was cancelled, as above mentioned, by midsummer.

During the year two dogs that left Ontario a few days before the rabies' order came into effect in that province were immediately quarantined on their arrival at Red Deer as a preventive measure. At this date neither have developed any symptoms of rabies.

Number of outbreaks—continued from previous year	1
Number of premises quarantined	4
Number of animals quarantined	9

BOUNDARY STATIONS

There are five of these in charge of this office, two of which—as mentioned elsewhere, Gateway and Kingsgate, B.C.—were taken over last August.

Pendant d'Oreille—	
Number of reactors	None.
Coutts—	
Number of reactors returned to United States	5
Number of contacts returned to United States	9
Twin Lakes—	
Number of reactors returned to United States	3
Number of contacts returned to United States	7
Gateway—	
Number of reactors returned to United States	2
Number of contacts returned to United States	8
Kingsgate—	
Number of reactors	None.

During the past winter a new site was selected on the International boundary line, at Pendant d'Oreille, for a quarantine station.

The inspection of stock shipments during the past year has again occupied a great deal of time. In addition to those being shipped to points within the province there has been examined for shipment to points outside the province thirty thousand seven hundred and seven (30,707) animals.

The Ministerial Order No. 37, which went into effect last autumn, providing for the cleansing and disinfection of cars carrying stock at certain divisional points, relieved your Inspectors to a great extent. This work is now done at Edmonton, Strathcona, Calgary, Lethbridge and Medicine Hat, under the supervision of car inspectors, except at the last mentioned point, where one of the regular inspectors gives this matter the required attention.

I have the honour to be, sir,
Your obedient servant,

J. C. HARGRAVE,
Inspector.

Dr. J. G. RUTHERFORD, C.M.G.,
Veterinary Director General,
Ottawa Ont.

APPENDIX No. 7.

S. F. TOLMIE, V.S.

VICTORIA, B.C., March 31, 1910.

SIR,—I have the honour to submit my annual report for the year ending March 31, 1910.

At the port of Victoria—417 horses, 16 mules, 5 cattle, 5,641 sheep and 1 goat were inspected.

The quarantine station here has been repaired and whitewashed during the year and is now in good condition.

At the port of Vancouver—176 horses, 1 mule, 1 cattle, 17,241 sheep, 3 foals.

Car inspection has been regularly carried on at this port and a large number of cars from the mange-infected area of Alberta have been disinfected. Entry was completed on some 86 horses entered for racing purposes at Vancouver. They were all subjected to the mallein test.

At the port of New Westminster—Cattle, 12; sheep, 1,931.

White Rock—843 horses, 8 mules, 70 cattle, 1,899 sheep, 3 goats.

Huntingdon—334 horses, 4 mules, 198 cattle, 27 sheep, 1 goat, 2 foals, 13 calves. Three horses rejected on mallein test.

A new quarantine stable was erected at Huntingdon during the year on land leased from the C.P.R. This will prove to be a great assistance in handling stock at this port.

Two cattle rejected on tuberculin test.

At Osoyoos—247 horses, 2 mules, 4 cattle, 2,481 sheep were inspected.

At this port 132 mallein tests were made. Six horses reacted and were refused admission. Four were also rejected on account of showing symptoms of maladie du coit.

Keremeos—49 horses, 12 cattle, 627 sheep.

Bridesville—62 horses, 8 cattle, 794 sheep; 14 horses rejected, 3 of which reacted to the mallein test.

Myncaster—22 horses, 8 cattle, 1,130 sheep. 2 horses being rejected on reaction to the mallein test.

Midway—17 horses, 52 cattle. 1 horse rejected on reaction to the mallein test.

Grand Forks—76 horses, 90 cattle, 141 sheep, 2 swine.

Nelson—52 horses, 6 mules, 159 cattle, 50 sheep, 19 goats. 2 horses rejected on reaction to the mallein test.

Rossland—28 horses, 129 cattle, 443 sheep. 1 horse rejected on reaction to the mallein test. 1 cow rejected on reaction to the tuberculin test.

Rykerts—37 horses.

Nanaimo—49 mules were inspected.

Glanders has been reported a few times. On investigation only 2 reactors were found in the Okanagan and one at Victoria.

Hog cholera has appeared in many parts of the Fraser valley and Vancouver Island. In Chilliwack the most extensive outbreak occurred. The disease first appeared in a very mild form. The owners of the swine affected attributed the sickness

to other causes with the result that the disease was much scattered before being discovered. It was found necessary to make a house to house inspection at intervals before the disease was overcome.

Total number of swine destroyed during year, 526.

Compensation paid, $3,233.72.

An outbreak of Horse Mange occurred on several Indian reserves in the Fraser Valley. A large number of horses were hand dressed and the disease is now well under control.

The source of infection as far as can be learned was the result of Indian horses travelling back and forth across the American boundary.

An outbreak of sheep scab has been dealt with in Agassiz and Chilliwack districts. The number of infected animals was 1,181. The infection was brought from California in a band of sheep belonging to the E. Clemens Horst Company of Chilliwack. No other flocks became infected from this band.

Owing to the inclement winter weather coming on shortly after the outbreak was first reported, the disease could not be dealt with as rapidly as desirable but the outbreak is now entirely cleaned up and no Scab exists in British Columbia at the present time.

Black Leg was reported during the year in the Nicola Valley and a number of animals died before the conditions were reported. Dr. Tamblyn was sent to the district in question to instruct the farmers in the use of Black Leg Vaccine and arrangements were made with Mr. J. A. Guichon of the Nicola Valley to handle vaccine and vaccination outfits of the Department. This has proven a great convenience to the stock men interested.

28 cattle and 2 swine were inspected for export during the year.

I have the honour to be, sir,

Your obedient servant,

S. F. TOLMIE,

Inspector.

The Veterinary Director General,

Ottawa, Ont.

APPENDIX No. 8.

CHAS. H. HIGGINS, B.S., D.V.S., F.R.M.S., PATHOLOGIST.

Ottawa, March 31, 1910.

Sir,—I have the honour to transmit this my eleventh annual report as an officer of the Department of Agriculture, my eighth as its pathologist.

Without further remarks I will enter upon some of the details connected with our work during the past year. The number of specimens examined has shown a considerable increase, there having been 425 series as compared with 376 series during the year preceding. Our manufactured products have, as formerly, consumed a considerable portion of the laboratory routine.

Detailed information will be found under the various headings which follow concerning some of the more important features of our work during the past year. I may, however, be permitted to add that there are many subjects of interest on which we have spent considerable time during the past year that are in such an in-

complete state as to render specific details of little value to the reader of this report. It is hoped that this information may be completed at some future date and embodied in reports on special subjects.

MALLEIN.

We have continued the preparation of mallein with satisfactory results, and while the increase in our disbursements is not so great as that recorded for the past few years, we are experiencing less trouble in its manufacture than at any previous time. The disbursements for the past year are as follows:—

	1906-07.	1907-08.	1908-09.	1909-10.
April	1,370	1,750	3,861	2,905
May	702	1,600	3,140	3,525
June	1,400	1,308	2,720	1,340
July	1,645	2,205	3,000	2,191
August	1,730	1,675	2,347	1,660
September	1,786	1,150	2,200	2,700
October	1,245	1,835	1,935	2,670
November	598	1,895	2,567	2,850
December	225	553	1,420	1,085
January	712	2,090	905	1,760
February	830	1,320	1,260	2,290
March	2,060	3,565	7,460	7,950
	14,303	20,946	32,815	32,926

TUBERCULIN.

There has been a falling off in the disbursements of tuberculin prepared at this laboratory during the past year. Tuberculin is the product with which we experience the least trouble in preparing and maintaining at a given standard. This is largely due to the fact that errors are more readily detected and rectified than with our other preparations. We have confined our efforts to the preparation of the ordinary old tuberculin of Koch for subcutaneous injection into cattle. Other preparations of tuberculin can be prepared, on request, for special requirements. Special residual bacilli emulsion tuberculin, which we furnished physicians over a year ago, has been used on cases of human tuberculosis with beneficial results, although no detailed case reports are yet available. The following statement gives our disbursements for the past four years:

	1906-07.	1907-08.	1908-09.	1909-10.
April	267	509	878	648
May	349	848	829	418
June	160	206	992	496
July	184	257	1,190	887
August	161	336	323	760
September	254	583	214	335
October	118	276	458	474
November	423	565	826	561
December	336	735	807	488
January	589	562	322	282
February	437	575	257	634
March	152	482	1,035	617
	3,430	5,934	8,131	6,600

BLACK-LEG VACCINE.

This vaccine still gives satisfaction to those using it and the method of administration also seems to be efficient, if one can judge by the absence of criticism. Our disbursements are increasing, and I believe that it will be necessary for us to design a special machine for performing the various operations that are now accomplished by hand. While such a machine will be rather expensive at the outset, the saving in labour and the rapidity with which the work can be accomplished through its use will more than compensate for the necessary outlay. Our disbursements for the past three years have been as follows:—

	1907-08.	1908-09.	1909-10.
April	250	2,185	1,330
May	392	1,177	1,114
June	554	601	1,714
July	392	572	1,007
August	254	550	310
September	586	734	899
October	998	260	360
November	785	218	788
December	1,560	410	380
January	...	35	136
February	270	420	4,761
March	990	902	730
	7,031	8,064	13,469

ANTHRAX VACCINE.

The diminishing requirements for this product can be favourably commented upon. The possibility of a large outbreak requiring a greatly increased output is before us, but with the improved method of preparing and disbursing the vira in a dry form, enables us to anticipate events and prepare our vaccines far in advance of necessary requirements. Since the inauguration of this method of supplying dried anthrax vaccines at this laboratory, commercial houses have considered this method with a view of supplying their vaccines in a similar manner. The disbursements for the past three years have been as follows:—

	1907-08.	1908-09.	1909-10.
April	239	...	...
May	17	...	38
June	...	...	112
July	98	256	47
August	77	75	40
September	5	10	62
October	15	43	17
November	...	...	...
December	32	25	...
January	...	10	...
February	...	...	...
March	...	36	70
	483	455	386

SWAMP FEVER.

Acting on your instructions I have consulted with Dr. J. L. Todd relative to his work with this disease at Macdonald College. This work has proven very interest-

ing, and will, I believe, be a fruitful source of information concerning this puzzling malady. From what I have been able to learn of swamp fever and the experience of others with allied diseases, some time must elapse before definite results are available or opinions formulated. This being the case, I believe it advisable to enlarge this experiment to such a degree that the results when available will be deduced from a sufficient number of animals to warrant the drawing of accurate conclusions. With the careful and conscientious work conducted by Dr. Todd, but a few months will elapse before the general trend of the investigation will be apparent, and it may then be possible to increase its scope, thereby enhancing the value of the final results.

HOG CHOLERA.

At your wish investigations were also commenced last fall to determine the nature of a disease affecting hogs in the vicinity of Ottawa. Four hogs were received, and it was found that the blood of two, after being passed through Chamberland filters 'B' and 'F', when inoculated subcutaneously, produced in hogs a disease indistinguishable from true hog cholera. Further experiments of a purely practical nature are contemplated and will be proceeded with immediately the weather permits. No effort has been made to produce the immunizing serum by the method patented in Canada or by other means. I am of the opinion, however, that we have at this time at least one naturally immunized animal, and I believe that further work with this affection should be undertaken, but the facilities at our disposal are wholly inadequate for such work on a scale commensurate with the importance of the disease.

POULTRY DISEASES.

We are still devoting a portion of our time to the examination of poultry and the diagnosis of pathological conditions that have resulted in losses to owners. Tuberculosis seems to be gaining a greater foothold and we have received a number of affected birds from widely separated sources. The investigations of Mohler and Washburn of the United States Bureau of Animal Industry, demonstrating that tuberculosis can be conveyed to hogs through the eating of the viscera of fowls dead of the disease is worthy of more than passing notice. The fact that eggs obtained from affected fowls may contain tubercle bacilli capable of infecting guinea-pigs, is anything but reassuring. How dangerous this type of tuberculosis is to the human race, our present data furnishes very inadequate information. Further investigations are required as the disease is of importance to consumers as well as to raisers of poultry.

White diarrhœa among chicks is still a source of annoyance to poultrymen, and while considerable attention has been devoted to this affection by various workers, there is still some controversy as to the causative agent. I have not met with arguments or writings on the subject which carry with them the weight of conviction. There is still an opportunity for the various workers to be more explicit concerning the malady with which they are working, and a need for greater precision in experiments that erroneous conclusions may not be drawn therefrom. Some investigators have been too ready to theorize on wholly insufficient data. From the chicks that I have been privileged to examine, conclusive evidence has not been forthcoming to lead me to change my opinion that the condition is largely due to delayed physiological function. From a physiological standpoint I believe that it will be necessary to accurately determine the various processes during incubation before a logical explanation can be made or measures formulated that will be fruitful in preventing losses accompanied by this manifestation.

ENTERO-HEPATITIS.

(Black-head of Turkeys.)

Entero-hepatitis is still the most potent factor in raising the already high prices of turkeys to the consumer, not only in Canada but in the United States, where it

has received considerable attention from various investigators. Originally described by Dr. Theobald Smith as being due to the parasite *Amoeba meleagridis*, many now hold that it is due to a coccidium. While circumstances have not been such as to permit a detailed study of the disease, with a view of elucidating this technical point, nevertheless we have been able to recognize the affection in birds received for diagnostic purposes. In connection with this affection it is significant to note that Dr. Wheeler in his last report as Director of the Rhode Island Experiment Station, comments as follows on the results of their investigations:—

'Although during the past year the investigations of the blackhead problem have thrown more light upon the etiology of the disease, the main issue remains unsolved:—How can turkeys be kept free from blackhead?'

From the investigations of various workers as well as my own experience, I believe that steps should be taken at once to determine whether the treatment of affected birds is feasible. It may be found that they can be carried over the acute stage and that nature can then successfully cope with the infection. Total eradication seems an almost unhoped for solution of the difficulty, as it is generally considered that the parasite may be present in the egg, on the egg and to exist in the intestinal tract of the common fowl as well as in affected turkeys. Much remains to be explained concerning the disease, and an effort in this direction should, in my opinion, follow the lines above outlined.

MUSEUM SPECIMENS.

In addition to the increase of our displayed specimens at the laboratory, we have provided exhibits of preserved specimens for the Toronto and Ottawa Exhibitions showing conditions frequently met with by the Meat Inspection Division, and we have further prepared specimens for use in anti-tuberculosis exhibits. We are constantly adding to our museum and are very grateful for the receipt of tissues showing uncommon or unusual lesions.

Many minor investigations other than those mentioned have been taken in hand from time to time, but owing to the limited amount of work we have been able to accomplish in this connection, there is little to offer of general or special interest.

In closing this report I may again be permitted to point out the advisability of an increase in the laboratory staff, and the accommodation provided for routine work, the manufactured products and special investigations, features which have already commanded your sympathetic interest and which will, I hope be amply provided for at an early date.

I have the honour to be, sir,
Your obedient servant,

CHAS. H. HIGGINS,
Pathologist.

The Veterinary Director General,
Ottawa, Ont.

APPENDIX No. 9.

SEYMOUR HADWEN, D.V.S.,
ASSISTANT PATHOLOGIST,
MT. LEHMAN, B.C., March 31, 1910.

SIR,—I have the honour to submit my report for the year ending March 31, 1910.

I returned to duty in your Department in July after nearly a year's leave of absence in Europe, where I went to improve my knowledge of parasitology.

Shortly after my return I was instructed to make a trip through Manitoba to collect biting flies and ticks, on the assumption that these might have something to do with the dissemination of the disease known as Swamp Fever among horses.

Only two specimens of the flies you considered most likely to be concerned in this transmission, *i.e.*, tabanidœ, were found, the season being unfavourable for them.

Numerous specimens of mosquitoes and the horn fly (hœmatobia serrata) were found biting freely but strange to say Stomoxys calcitrans (the stable fly) was not encountered; this is a most singular thing and is worthy of note; both in Ontario and British Columbia this fly is very troublesome to cattle and horses.

During my stay in Manitoba I received two specimens of a tick which I identified as a Hoemaphysalis; they were collected for me by Dr. Hobbs from a steer.

This finding may prove to be of economic importance as the tick has since been positively identified by Professor Nuttall of Cambride as hœmaphysalis punctata, the British carrier of red-water. The tick is apparently not a new importation as specimens were collected a year previously by Dr. McGilvray also off cattle at Winnipeg. This double capture makes it highly probable that the tick can survive the winter and that it has become established in Manitoba.

I would respectfully suggest that the next time these ticks are encountered on an animal that an inquiry be made to find out where the animal originated and to see if it harbours piroplasma.

In August I attended the meeting of the British Association and gave an address on the curative treatment of Texas Fever with trypanblau. I was then recalled to Ottawa to take charge of the laboratory which became necessary owing to the pathologist being taken ill.

In September I obtained leave to attend the annual meeting of the A.V.M.A. at Chicago, where I read a paper on Piroplasmosis canis and bovis.

On October 6 I was instructed to proceed to British Columbia to continue the red-water investigation which had discontinued temporarily owing to the resignation of Professor Bowhill. En route in company with Dr. Hargrave I visited the Dourine Experiment Station at Lethbridge, where a few days were very profitably spent with Dr. Watson who showed us the work he was doing.

Shortly after arriving in British Columbia Dr. Tolmie and I made a tour of the Fraser Valley, where red-water is most prevalent among cattle.

I may say now that when I came out to British Columbia I was under the impression from reading my predecessor's reports that the disease I was coming to study was Piroplasmosis bovis. I found shortly after my arrival that though there were numerous cases of red-water (hœmaturia) about, I could not find any cases of piroplasmosis (hœmaglobinuria). I made as complete a study of the conditions as was possible in the time, and in January sent you my first report, giving proofs that the cases I had been working at were of hoematuria and not of piroplasmosis; also that I could not agree with many of the statements made by Professor Bowhill regarding the piroplasma infection of cases he described.

I do not wish to place myself on record as stating that piroplasmosis does not exist in British Columbia or of its possible introduction. The mere fact of H. punctata being found in Manitoba is enough to make one guarded in this particular.

Further evidence has since been obtained corroborating the above statements.

Blood preparations made by Professor Bowhill on which he claimed there were piroplasmata, were examined by me. and on failing to find parasites, I suggested to you that the films be forwarded to Professor Theobald Smith of Harvard University to confirm my findings; this was done and a report shortly received from him saying that he had failed to find any intraglobular parasites suggesting piroplasma.

As the present investigation was started to find out the causes of the affection among cattle here, the above statements are necessarily of importance.

In my report I made various recommendations for future experimentation, which I hope you will approve and sanction. This condition of hoematuria affecting the cattle is a very serious one and is a distinct handicap to the dairy industry of certain sections of British Columbia.

In conclusion I wish to thank you for the opportunity you have given me to study this and other conditions; I also wish to express my thanks to Dr. Tolmie for his valuable help in the present investigation.

I have the honour to be, sir,
Your obedient servant,

SEYMOUR HAWDEN,
Assistant Pathologist.

To the Veterinary Director General,
Ottawa, Ont.

APPENDIX No. 10.

E. A. WATSON, V.S.,
ASSISTANT PATHOLOGIST,

EXPERIMENTAL QUARANTINE STATION,
LETHBRIDGE, ALTA., March 31, 1910.

DR. J. G. RUTHERFORD,
Veterinary Director General,
Ottawa, Ont.

SIR,—I have the honour to report as follows on 'An Experimental Study of Dourine or Maladie du Coit.'

I have the honour to be, sir,
Your obedient servant,

E. A. WATSON,
In charge Experimental Station.

SECTION I.—Introduction—

Different strains of dourine—Their source, natural transmission, artificial transmission, inoculation in small animals, and results. Variations in virulence. The interval of incubation.

SECTION II.—

Immunity—Natural immunity and susceptibility. Acquired immunity, active, passive.

SECTION III.—

Remarks on the Parasite of Dourine—Is T. equiperdum a true blood parasite? The role of phagocytosis in Dourine. Vitality of T. equiperdum under artificial conditions.

SECTION IV.—

Diagnosis—The plaque or cutaneous symptom and its position in diagnosis, a study. Oedematous conditions other than plaques. Genital symptoms. Body temperature (paroxysms of fever). Ocular lesions. Sexual power and procreation. Examination of body fluids for the trypanosoma. Gland palpitation and puncture. The relative value of postmortem findings. Note on serum diagnosis.

SECTION V.—

The Experimental Treatment of Dourine—Records of experiments with Atoxyl, records of experiments with Atoxyl and Mercury, records of experiments with Atoxyl and Donovan's sol. Summary of results. Some general remarks on experimental treatment and our present means of testing a cure or recovery. References to literature.

SECTION VI.—

Experiments on Breeding in Relation to Dourine—Table II, showing summary of results. Remarks on the results of the breeding experiments.

Concluding remarks.—Tables I-II.

REPORT OF THE EXPERIMENTAL STATION (HEALTH OF ANIMALS,) LETHBRIDGE, ALTA.

DOURINE OR MALADIE DU COIT, AN EXPERIMENTAL STUDY.

BY E. A. WATSON.

Introduction.

Certain inoculation experiments that I commenced at the end of the year 1906 and in 1907, with the object, primarily, of determining the suspected protozoan nature of the disease diagnosed as dourine upon clinical symptoms alone, have been successful, though the results and positive proofs have been, in some cases, very late in forthcoming owing to prolonged intervals of incubation and a mild or obscure infection.

My earlier observations (contained in special report on maladie du coit or dourine, November, 1907), on the specific trapanosoma of the variety of dourine which had appeared in western Canada I have been able to repeatedly confirm by isolating the parasite from several different centres of infection, by reproducing the disease in healthy horses by inoculation of the parasite and by observing the same upon many hundreds of occasions in certain body fluids of infected equines.

Nevertheless, the detection and study of the trypanosoma equiperdum in its natural host is attended with the greatest difficulties and only at the expense of a great amount of time and labour, for, as it is now well known, the course of dourine in the horse is usually a very irregular one, the periods of trypanosome activity in the accessible fluids being of rare occurrence, few and far between, of brief duration and even then, more frequently than not, the parasites are scanty in numbers. It is not surprising, therefore, that in a number of cases of naturally acquired dourine obtained in this district and held under observation for varying periods of time, trypanosomata could never be detected. However, by a selection of cases in which the infection had not reached an advanced stage, by maintaining a constant lookout for œdematous swellings of the genital organs and of the skin and by keeping up systematic microscopical examinations of the fluids of such swellings and of the mucous membrane of the vagina, trypanosomata can be brought to view.

From each one of five clinically affected equines coming from four different breeding establishments in this district I have succeeded in obtaining a strain of the dourine trypanosoma. In European, Algerian, Indian, and, we may add, American, dourine the variation in virulence is becoming a notorious fact, not only in the different varieties but also in different strains of the same variety. Passing from animal to animal of a certain breed a strain of dourine may increase in virulence while in another breed it appears to lose a great deal of its pathogenic properties; at the same time, certain individual animals of either or any breed appear far more susceptible or resistant, as the case may be, than others.

The strains of dourine which are dealt with in this section of my report, although in all probability, removed by only a few generations from a single, original strain which cannot be traced, will be considered as five different strains and referred to as A, B, C, D, and E, strains, respectively, the observations upon or experiments made with each being described in the order indicated, and as follows:—

DIFFERENT STRAINS OF DOURINE.

'A' Strain.

Source.—A Clydesdale stallion, No. 33, first showing symptoms of dourine in the year 1905. The illness, during the latter half of the year 1905, was marked, chiefly, by intermittent œdematous swellings of the genital organs and lower surface of the abdomen, and terminated in death (July, 1907), about two years from its commencement.

Natural transmission.—A grade mare, animal No. 73, was found in an advanced stage of dourine in the spring of 1907; an inquiry into the history of the mare left little doubt but that she was naturally infected by the above stallion in 1905 or in 1906. The chief symptoms were an irregular, unbalanced gait, articular crepitations, vaginal discharge and emaciation. On August 13, 1907, there occurred a severe exacerbation of genital symptoms. In the fluid of a swelling that followed the injection of a test-serum developmental forms of trypanosomata were found. In the last months of this year, 1907, there was persistent vaginal discharge, diarrhoea and increasing emaciation, death taking place upon December 19. Frequent examinations of the blood and vaginal fluids were always negative.

A filly-foal was born to this mare in May, 1907. The foal never appeared in normal health; when seven months of age it developed a severe form of strangles, from which it recovered. In the spring of 1908 there was noticeable a dragging paralytic gait in the hind limbs which steadily became more pronounced. Later, the fetlock joints weakened, first on the hind and then of the front limbs, finally giving way and knuckling over forwards. The animal died of emaciation and paralysis when two years of age. Examinations of the blood and vaginal fluids were always negative. Proof of dourine infection was never established though the symptoms were very suggestive.

Artificial transmission.—Animal No. 26.—Two year old filly. Received several inoculations with the blood of stallion No. 33, in November, 1906. Throughout the year 1907 the result of the inoculations remained in doubt. Trypanosomata could never be detected. The vaginal secretions were increased in quantity, there was, occasionally, a slightly stiffened and suspicious muscular action, the body had an undernourished appearance but there was never presented any definite symptoms of the disease. In 1908, nothing occurred to arouse suspicion until August 22, when a small, thin plaque appeared on the skin over the middle right ribs and the submaxillary glands showed much enlargement. The plaque and the glands were punctured with a fine needle and in preparations taken from the former trypanosomata were found present; examination of the gland juice, of the blood and vaginal fluids was negative. In November, 1908, all symptoms and traces of symptoms disappeared and the animal maintains a normal condition. This lone plaque, occurring in the 21st month after inoculation, constituted the only clear sign of infection during a period of observation extending over 2½ years.

Inoculations in small animals.—Three dogs, three rabbits and six mice were inoculated with the blood or œdematous fluids of stallion No. 33. Signs of infection in these animals were always lacking and the trypanosoma was never recovered.

'B' Strain.

Source.—A range mare, animal No. 28, showing pronounced symptoms of chronic dourine in May, 1906. Two months later the mare gave birth to a filly-foal which appeared in normal health up to the time of its artificial infection (see experimental inoculations with 'E" strain, animal No. 29). In November and December, 1906, the condition of the mare was that which characterizes the final stages of dourine, namely, emaciation, loss of muscular co-ordination and paralysis. Death from dourine occurred in January, 1907. Trypanosomata were never detected in any of the numerous preparations of the blood and body fluids taken during the life of the animal and after death.

Artificial transmission.—Animal No. 27, a two-year-old filly.—On October 29, 1906, some of the vaginal discharge of the mare No. 28 was injected into the vagina. Between November 19 and December 3, the filly received intravenous, intraperitioneal and intramuscular inoculations of blood from mare No. 28. Up to Jan. 28, 1907, examinations of the blood and vaginal fluids for trypanosomata were negative. Blood was then drawn from the jugular vein until signs of distress were plainly evident, hoping by this means to reduce what appeared to be a natural resistancce to infection. A few days later, cold serous swellings developed between the muscles of the limbs, especially about the joints, and persisted for nearly one month. A thorough search for trypanosomata in these serous fluids was made, but proved fruitless, and no better results were obtained from further examinations of blood and fluids from the vaginal mucous membrane. From March to July, 1907, the general health and condition was below normal, but no symptoms were presented referable to dourine.

On July 27th, 25 c.c. of a dourine serum ('A' strain) was injected under the skin of the neck, the serum being first passed through a Chamberland filter. The reaction that followed was very similar to a mallein reaction in a glandered animal. In one preparation of a large number examined of the fluid of the swelling, a few trypanosomes were detected. Absorption of the swelling commenced at about the 24th hour and was complete at the 48th hour.

From this time there was a slow, but perceptibly increasing loss in flesh. From January to March, 1908, there was emaciation and loss of muscular co-ordination. The filly died on April 15, in the 16th month after inoculation. The musculature was found to be infested with sarcosporidia.

Inoculations in small animals.—Eight dogs and two mice received inoculations of blood, taken during life, and of ascitic and cerebro-spinal fluid, taken immediately after death, of mare No. 28. Three mice were inoculated with serous fluid from the joint swellings on filly No. 27.

There was never any clear evidence of infection in any of these animals; blood examinations were always negative.

'B' strain was lost on the death of the filly, animal No. 27.

'C' Strain.

Source.—A range mare, animal No. 75.—When first examined, on September 25, 1907, the whole of the visible vaginal mucous membrane presented a mottled, copper-coloured hæmorrhagic appearance. Trypanosomata were present in fair numbers. In October there was œdama of the perinæum, labia pudendi and vaginal mucous membrane; trypanosomata were still present in the fluids of these swellings, but have never again been detected. From November, 1907, to June, 1908, the mare kept in fair condition and appeared pregnant. On June 22, there were signs that the mare had foaled, and on searching the pasture the foal was found, dead. In the next few months the mare lost rapidly in condition, but in December, 1908, commenced to improve and has now regained an apparently normal condition.

Inoculations in small animals.—Six mice, a porcupine and a vole were inoculated with the fluid from the vaginal mucous membrane and œdematous swellings; trypanosomata were known to be present in the inoculated fluid, but were never recovered from these animals, neither were any signs of infection ever to be observed.

'D' Strain.

Source.—A range mare, animal No. 82.—When first examined, on September 25, 1907, the labia pudendi were tumefied and the vaginal mucous membrane showed infiltrated patches. In October, trypanosomata were found present in the vaginal fluids. In November there was œdema of the lower surface of the abdomen, which, in December, extended along the under side of the chest. In February, 1908, the vaginal mucous membrane was again oedematous and trypanosomata were again detected in the fluids. A return to normal followed and has been maintained for a period of one year, up to the present time.

'D' strain is probably identical with 'C' strain. Both mares, No. 75 and No. 82, and six others, all from the same breeding establishment (D. J. W.), were found affected at the same time, when the stud, consisting of about 80 animals, was examined on September 25 1907.

A Clydesdale stallion, No. 40, that stood for service with this stud during the season of 1906, showed slight symptoms a few months later and died from dourine in March, 1907, the disease running a sub-acute course without intermission.

Inoculation.—Traces of vaginal fluid (blood and mucous), containing trypaosomata, were inoculated into the vaginal mucous membrane of a filly, No. 67. This filly had previously received treatment with serum ('A' strain) with the object of conferring a passive immunity. The inoculation of trypanosomata was made on February 3, 1908, and apparently failed, for no sign of infection could be traced. On August 27 and 29, 1908, the filly was reinoculated with 'E' strain of dourine, but up to March 31, 1909, still maintains immunity.

'E' Strain.

Source.—The stud of Mr. R. T——n, Lethbridge.

Natural transmission.—A Clydesdale stallion, No. 35, became infected and transmitted the disease to a number of mares during the covering season of 1906. It was not until late in that year that the first symptom in the stallion—a slight and intermittent swelling of the sheath—appeared and aroused suspicion. The disease advanced tardily until August, 1907, when it became very active, its course marked by extensive œdematous swellings, eye symptoms, weakness, emaciation and death on February 25, 1908.

In the meantime it had been discovered that 4 mares in Mr. T——n's stud and 7 outside mares, covered by this stallion in the season, 1906, were suffering from dourine. It is probable that the stallion was himself infected by one of these 7 outsiders. Of the 11 mares 6 were destroyed, 2 died from dourine (although in one a diaphragmatic hernia very possibly contributed to the cause of death), and the remaining 3 survive, 2 of which, No. 47 and No. 52, have apparently recovered, the other, No. 36, being in an advanced stage of disease.

A stallion that covered mare No. 36, subsequent to the covering by stallion No. 35, became infected and transmitted the infection to another outside mare, No. 96, which was destroyed in consequence. The stallion was castrated, but died, showing symptoms of dourine some months later.

It was in mare No. 36 that the first proof positive of the nature of Canadian dourine was established, from the discovery in the vaginal fluids, by Dr. Gallivan and

myself, on February 11, 1907, of the casual agent, trypanosoma equiperdum. A full account of our observations upon this mare have been published, and it is only necessary to add that nervous phenomena have predominated throughout the course of infection which has endured for the space of nearly three years. The mare improved in general condition during the summer of 1908, but lost it the following winter and has never regained a proper equilibrium or muscular co-ordination. Trypanosomata were found at rare intervals from the 6th to the 13th month of the disease, never afterwards.

Artificial Transmission, First Series.

(1) *Animal No. 39,* a filly foal (the dam of which, No. 25, suffered from a severe type of dourine).

On February 11, 1907, she was inoculated with trypanosomata from mare No. 36. An incubation interval of ten days followed; an œdematous swelling at site of inoculation then developed, in the fluid of which trypanosomata were present, and, in addition, spores of the muscular parasite, sarcocystis. The infection ran a sub-acute course and was marked by a single plaque, enlarged glands, progressive paralysis, frequent micturition, œdema of the genitalia and undersurface of abdomen, emaciation and death on June 29, 1907, in the 5th month of the disease.

(2) *Animal No. 29,* a filly foal (the dam of which, No. 28, died from dourine, 'B' strain), was inoculated in February and March, 1907, subcutaneously and intravaginally. The incubation interval that followed the former was, apparently, one of nineteen days, the latter, forty-nine days. Trypanosomata were found present at intervals during May, June, July, August and October, 1907. The glands became enlarged but the parasites were not seen in preparations of the gland juice. Up to this time the symptoms had been very slight and vague. There was no vaginal discharge and only a slight tumefaction.

In December, 1907, a severe attack of strangles came on, towards the end of which there developed a marked knuckling over of the metacarpophalangeal articulations. The animal recovered from strangles, and for the next six months easily tolerated the dourine infection, neither symptoms nor parasites being observed.

On August 7, 1908, 5000 c.c. of blood was drawn from the jugular vein; the operation was followed four days later by a period of plaque eruption (see Table I), lasting fifty-five days, during which fourteen plaques were noted and trypanosomata frequently detected. Also, at this time, eye symptoms were manifested—sensitiveness to light, watery discharge, dimness and swollen lids. A return to normal condition and apparent health quickly followed and has been maintained up to the present time.

(3) *Animal No. 41,* an aged 'cayuse' mare, was subsequently inoculated on February 17, 1907, with trypanosomata from mare No. 36. One hundred and forty days later the parasites were recovered from the blood and fluids of a slightly swollen vagina and continued present at intervals for a period of three months.

On August 2, 1907, 10 c.c. of the serum of dourined stallion No. 33, 'A' strain was injected under the skin and gave rise to a marked local reaction. At the 8th hour the swelling measured 7 by 10 inches; it then diminished in size and was completely reduced at the 36th hour. At the 48th hour it recurred, flat and circumscribed, obtaining a diameter of 4 inches and was again completely reduced at the 72nd hour.

After an interval of 45 days a similar dose of serum of dourined stallion No. 72 was injected, the serum, as in the previous experiment, being first passsed through a sterile Chamberland filter. A swelling followed, reaching its maximum, 7 by 9 inches, at the 24th hour; only a trace of it remained at the 48th hour. On the 3rd day the mucous membrane of the left nostril was hæmorrhagic and discharged a thin, blood-

tinged fluid. A febrile reaction did not occur in either experiment. During the period covering these experiments clinical symptoms were extremely vague; but, rarely, a few trypanosomes were found in the vaginal fluids.

The effect of injections of these sera in healthy equines was studied in two fillies, one receiving a dose of 20 c.c., the other a dose of 30 c.c., double and treble the amounts given above. In the one there was no swelling or rise in temperature, though a slight stiffness of the limb was apparent (the injection was made in the glutcal region) from the 12th to the 24th hour. In the other there was a rise in temperature of 1·6 degrees and a flat swelling, 8 inches in diameter, between the 8th and 10th hours, which was very rapidly absorbed.

Continuing, with animal No. 41, from October, 1907, until April, 1908, the infection remained quiescent. On April 14, trypanosomata reappeared in the vagina and the labia pudendi became markedly œdematous. The paroxysm was a brief one and nothing of note occurred until August 13, when the first plaque appeared. There followed a period of plaque eruption of 94 days in which 29 cutaneous swellings were noted, trypanosomata being detected in the fluids of a number of them.

There was some failing in condition during this term, but the normal was quickly recovered, October, 1908, and has not again been interrupted.

The sequence of events in connection with the infection of this animal is then, briefly, a prolonged incubation interval, three months of activity, reaction to serum injections, six months quiescence, a brief recurrence, three months quiescence, three months marked activity (plaques), and again a long interval of uninterrupted health, still enduring.

(4) *Animal No. 43.*—This two-year-old gelding was subjected to a venous transfusion of blood from mare No. 36; it was estimated that at least 600 c.c of blood passed into the circulation of the gelding. Date of transfusion, April 24, 1907. On July 22, enlarged glands were detected and punctured; examination of the juice was negative. On September 2, clinical symptoms characteristic of dourine appeared,—loss of muscular co-ordination, knuckling of the hind fetlocks and articular crepitations.

A serum test was made on September 17, 10 c.c. of serum of stallion No. 72 was injected under the skin and a local reaction followed. The swelling obtained its maximum at or about the 24th hour, 6 by 7 inches. It was completely reduced at the 48th hour.

The symptoms mentioned above continued intermittently until March 1908, and, at one time, for a period of two or three weeks, paralysis of the hind-quarters was threatened. In April the condition was normal.

Blood-letting test.—The apparent recovery was tested on August 14 by withdrawing 8000 c.c. of blood. No recurrence followed and the recovery has been maintained up to the present, or for a period of over one year. During the course of infection cutaneous symptoms were never presented and trypanosomata were never seen in the blood.

(5) *Animal No. 70.*—This filly, two and a half years of age, was inoculated, October 4 and 8, 1907, under the vaginal mucous membrane, with traces of trypanosome, containing fluids from the vaginae of experimental animals Nos. 29 and 41. The incubation interval was about 14 days. The primary symptom was œdema of the mucous membrane in the region of the inoculation. In this fluid trypanosomes were present in vast numbers. One month later the parasites were still present, though the appearance of the genitals differed but slightly from the normal. On January 25, 1908, the examination of six preparations of vaginal blood and mucous was negative, but after a thorough irrigation of the canal with a sodium citrate solution a very few trypanosomes were discovered. The last observation of the parasites was made upon

February 1, there was then œdema of the skin under the abdomen. In March the filly received three doses of atoxyl. Symptoms rapidly disappeared and health returned.

Blood-letting test.—On September 10, 1908, 5000 c.c. of blood was withdrawn. No recurrence followed and recovery is apparent, one year after treatment and eighteen months after inoculation.

(6) *Animal No. 69.*—A three-year-old filly, inoculated in the labium pudendi, on August 27, 1908, with a trace of trypanosome—containing fluid from a plaque, filly 29. Incubation interval, eighteen days. The primary symptom was a very pronounced swelling of the labium. Trypanosomata were very numerous. The swelling, which was at first tense and warm, soon became cold and œdematous; it persisted for seven days and was then rapidly reduced, but recurred after intervals of 6 days, 30, 35 and 33 days, respectively. The course of the infection for the first 7 months was thus marked by five definite paroxysms, in each of which, in the œdematous fluids, trypanosomata were found present, usually in great numbers. The fifth intermission is now continuing. The temperature was not recorded for the animal proved a very difficult one to handle. The symptoms have been strictly local and no failing in general appearance and condition has been noted.

(7) *Animal No. 3f.*—A horse foal, inoculated, subcutaneously, on August 16, 1908, with fluid from a plaque, filly 29. The series of events is described in detail under 'treatment.'

Summary.—Incubation interval, 29 days. Primary symptom, œdema at point of inoculation. Subsequent paroxysmal fever, œdema of the p. sheath; eye lesions and enfeeblement. Treatment, a course of atoxyl, followed, after an interval, by a course of atoxyl and Donovan's solution.

Result.—Recurrence of paroxysmal fever, eye symptoms; a progressive enfeeblement.

(8) *Animal No. 5f.*—A filly foal, inoculated on August 26, 1908, when one month of age, with trypanosome, containing fluid from a plaque, filly 29. The inoculation was given under the skin, in the region of the middle ribs. Three months went by without an indication of infection being observed. Unfortunately the temperature was not recorded during these months. Commencing early in December and continuing to date, an almost constant elevation of temperature has been the rule; only to a slight degree has it appeared paroxysmal.

On the 113th day after inoculation the first local symptom was presented, namely, a very pronounced swelling of the labia pudendi, a condition which recurred again and again, at first with marked regularity, the periods of eruption, reduction and quiescence being clearly defined. Gradually the tumefaction changed its distinctive character, becoming more chronic and fluctuating, but neither obtaining the same extent as formerly nor quite reducing to the normal limit.

From this swelling and from the vaginal mucous membrane trypanosomata have frequently been obtained, and, as in the development of a plaque, at a certain stage they are present in great numbers, though it is for a very short period, a few hours at the most.

The growth and development of this young animal has been apparently unhindered by infection; it is noteworthy that, as in the case of No. 69, apart from temperature, œdema of the vulva and first portion of the vagina constituted the only visible and definite symptoms of the disease

(9) *Animal No. 1f.*—A filly foal, inoculated on July 30, 1908, when two months of age, with 60 c.c. of blood from the main circulation of mare 36.

For four months no symptoms were observed, but the temperature was not recorded. In December, commencing on the 143rd day after inoculation, there

occurred a paroxysm of fever. There was still an absence of local symptoms when, on January 8, 1909, the filly was reinoculated, intralabially, with trypanosomata from the swollen labia of foal 5f.

After an interval of 12 days the characteristic swelling developed at the point of inoculation and in preparations obtained trypanosomata were to be seen in rosettes and agglomerations, as many as 18 parasites in a single cluster.

Exacerbations and remissions of this local symptom followed in much the same order as in the case of foal 5f, and besides there being a slight but more or less constant elevation of temperature, pronounced paroxysms of fever recurred with a similar regularity to those of foal 3f.

In the 9th month after the first inoculation the hind limbs showed weakness and nervous irritation. In the 10th month the lymphatic glands became much enlarged. With these exceptions there is but slight, if any, variation from the normal in the development of this animal and its present condition as a yearling filly.

(10) *Animal No. 6f.*—A filly foal, inoculated on March 9, 1909, when 7 months of age, intralabially, with trypanosomata from the swollen labia of foal 1f, this being the 5th (V) passage in succession of 'E' strain.

Nine days intervened between inoculation and œdema of the labium pudendi. At the end of the 1st day of the eruption a vast army of trypanosomes had developed and were attacked by macrophage cells. The destruction of the parasites was very rapid, but not complete, for a very few were found present day after day. It was not uncommon to observe a single phagocyte that contained the remains of as many as five trypanosomes.

The temperature was slightly elevated from the 13th to the 22nd day after inoculation, and then rose rapidly; paroxysms followed one another in close succession, the fever being remittent rather than intermittent.

A rapid failing in condition ensued, with marked enfeeblement. The eyes are dim and the lids much swollen; the glands are exceedingly prominent.

The infection is evidently a severe one and running a continuous, sub-acute course.

(11) *Animal No. 7f.*—A filly foal or yearling (11 months old), received the 6th passage of 'E' strain. The incubation interval was reduced to 6 days. The course of infection resembles that in the preceding case and the observations made are very similar.

Inoculations in small animals.—The following table indicates the numbers and kind of small animals inoculated with 'E' strain:—

—	Dogs.	Cats.	Rabbits.	Rats.	Mice.	Gophers.
Stallion, No. 35			4			
Mare " 36	8	2	10		16	2
" " 41				2		
Filly " 29			3		2	
" " 69				3		
Foal " 3 f				2		
" " 5 f				2		
" " 1 f				5		
" " 6 f			2	8		
" " 7 f			3	3		
Total numbers	8	2	22	25	18	2

Period of Observation—

Shortest.—2½ mths., 1 mth., 1 mth., 15 days, 5 days, 15 days.
Longest.—16 mths., 2 mths., 16 mths., 9 mths., 12 mths., 1 mth.

The various methods of inoculation were employed. Not infrequently, and especially with the rats, the material injected was known to be rich in trypanosomata. In a number of animals the inoculation was repeated one or several times; occasionally, sub-inoculations were made from dog to rabbit, from rabbit to rat and from rat to rat. Nevertheless the dourine parasite was never recovered from any one of these animals and not a single positive result has been obtained.

In three dogs very slight changes occurred in the sexual organs and in the eyes. Ill-defined eye lesions were also noted in several rabbits. Quite recently two rats have exhibited paralytic symptoms in the hind legs. These few indications are rather suggestive that the attempts to convey the infection to animals other than the equine species, though apparently unsuccessful, may not absolutely have failed.

It will doubtless be remarked that these observations are in accord with those of Marek on Hungarian dourine and of Motas on Roumanian dourine, and that this Canadian variety differs but little from the European though very markedly from the Algerian and Indian varieties.

Variations in Virulence, for horses, of different strains of dourine and varying susceptibility and tolerance shown by individuals.

It may be seen from the foregoing that—

'A' strain, proving fatal to a naturally infected stallion and mare, is easily tolerated in an artificially infected filly.

'B' strain proved fatal both to the naturally infected mare from which it was obtained, and to an artificially infected filly.

'C' strain produced severe symptoms in a naturally infected mare, but, later, became well tolerated, and may have died out.

'D' strain, similar to 'C' strain, though productive of a characteristic group of symptoms in a naturally infected mare, did not prove fatal. A filly, protected with the serum of an animal infected with 'A' strain, successfully resisted artificial infection.

'E' strain proved fatal to 2 stallions and to 2 of 11 mares (6 of the latter being destroyed, 3 surviving), all naturally infected. Of 11 equines artificially infected, 10 survive, the strain proving fatal to one, severely pathogenic to 4 and fairly tolerated by the remainder; 2, at least, apparently recovering normal health.

It is significant that every one of the equines inoculated, other than recovered and protected animals, sooner or later exhibited symptoms clearly indicating dourine, and in all save one, a gelding, the infection was proved by ascertaining the presence of trypanosoma equiperdum; in the majority of cases the course of the disease could be traced by noting the periodicity or recurrence of characteristic pathological formations and their associations with trypanosomata.

However, the *incubation interval* or lapse of time between inoculation or infective covering and the determination of trypanosome activity, as well as subsequent events, varied greatly in adult animals. In the two cases (No. 26 and No. 27) inoculated with the blood of a stallion and a mare in the final stages, probably the 16th and 17th month, respectively, of natural dourine, clinical symptoms were very late and ill-defined and trypanosomata not found until the 21st month in the one, and the 10th month in the other, after inoculation. Those two animals, it is worth noting, were the first of the equines that it was attempted (November, 1906) to artificially infect with Canadian dourine by direct inoculation of blood, the inoculations proving, eventually, to have been successful, though very late in being recognized as such. The other extreme is shown in the cases of those most recently infected (1909), the filly foals Nos. 6f and 7f, in which the incubation intervals were only 9 and 6 days, respectively, very definite recurrences of clinical symptoms and paroxysms of fever following.

These foals obtained their infective material from others in only the 2nd month of infection during periods of marked trypanosome activity.

It seems possible, therefore, that by successive and *early* passages of the dourine parasite from horse to horse the incubation interval is reduced and virulence increased.

NOTE.—Since the above was written another inoculation has been carried out in a young horse-foal, the incubation interval shortening to five days.

IMMUNITY.

Natural immunity and susceptibility.—We have seen that varying degrees of natural resistance, tolerance and susceptibility to dourine infection may be met with in individuals of the horse-tribe, though not one has been shown to possess an absolute immunity. There is the possibility, however, that where tolerance is shown, in some cases, at least, it may be due rather to a weakened virulence of the trypanosoma than to the natural resistance of its host.

The filly foals Nos. 29 and 39, artificially infected at the same time and from the same source, were born to dourined mares Nos. 28 and 25, respectively; in the former, the mare died from dourine and her foal recovered, while in the latter the results were reversed, the foal succumbing in the fifth month of infection, the mare making a remarkable recovery.

Foals Nos. 3f, 5f, 6f and 7f, were born to mares that had apparently recovered from dourine and were sired by a healthy stallion. All the foals were susceptible, the infection being most severe in the horse-foal No. 3f (the others are fillies) and in accord with other observations that the unaltered male is more susceptible than the female and rarely survives infection.

The natural immunity, or otherwise, of the offspring of mares actively immunized has not yet been studied.

Acquired immunity, active (a) and passive (b).

(*a*) Mares that have recovered from dourine posssess a high degree of resistance to reinfection.

The following, Nos. 9, 7 and 17, are said to have been suffering from dourine about the year 1904. Nos. 9 and 17 were covered, in 1906, by dourined stallions. In the winter of 1906-07 all appeared healthy. Nos. 9 and 7 were inoculated in February and No. 17 in May and October, 1907. In No. 9 trypanosomata were re covered 85 days after inoculation. Clinical symptoms were limited to the sexual organs and were disappearing in September, 1907, when a serum injection brought on a recurrence. Characteristic dourine conditions were to be observed up to the end of that year, the mare becoming very ill indeed. Recovery, in 1908, was rapid, though eye lesions persisted for a considerable time. In No. 7 the inoculation was apparently unsuccessful, no sign of disease following; in No. 17, the only suspicion rested on slight eye lesions. No. 7 was again inoculated, May 21, 1909, and on the same date No. 17 received her fourth inoculation, being in the 10th month of pregnancy—the third inoculation had been made during the sixth month of pregnancy—but no sign of infection has been detected in either mare, and, after a normal term, a strong and healthy foal has been born to No. 17.

Covering the whole period of these attempts at reinfection in mares 7 and 17, and for nearly a year in mare 9, one could only remark upon their perfect health and condition.

One other case must be mentioned, that of a young mare, No. 48, showing mild symptoms of dourine in May, 1907. The infection was well tolerated and recovery appeared to have taken place before the end of the year. One year was allowed to

elapse, and, no sign of a recurrence being noted, inoculations of dourine blood were made subcutaneously and intralabially, December 5, 1908, and intravaginally, February 4, 1909, all of which have apparently failed.

So, then, reinfection occurred in one mare but was again followed by recovery, and three mares appear to be quite immune.

Passive immunization.

(*b*) Believing that the trypanosoma equiperdum, in the horse, is a tissue rather than a true blood parasite, that its multiplication takes place in the intercellular spaces of certain organs or structures, particularly the sexual, and that the toxins and products of its metabolism occur locally and are then taken up and distributed by the lymph channels and blood stream—I have employed the serum of horses dying from or in an advanced stage of dourine, with a view to prophylaxis—with the idea that the injection of such sera into healthy horses would give protection against dourine infection of produce and anti-serum capable of offsetting such infection.

Two stallions and a mare, each one exhibiting the characteristic œdematous conditions of dourine, furnished the sera which were collected in sterile vessels, stored upon ice and passed through either a Chamberland or Berkefeld laboratory filter before injection.

Experiment 1.—A young mare, No. 68, received injections of sera in increasing doses, the last and largest, 300 c.c., being given on January 7, 1908. Inoculation, intravaginal and subcutaneous, April 21, 1908, was not followed by an infection that could be ascertained. Further inoculations in August, were effective,plaques, eight in number, occurring before the end of the year and trypanosomata in the fluid contents. The infection was well borne and without loss in general health and condition. A fourth inoculation, May 21, 1909, was followed by the eruption of a single plaque.

Experiment 2.—A young mare, No. 67, received injections of sera as in experiment 1, the last dose being given on January 9, 1908. Inoculations of trypanosomata and dourine blood, February 3, August 27 and 29, apparently failed. Up to the end of March, 1909, no sign of infection had been betrayed or suspected, but in April there occurred under the abdomen an œdematous swelling which came and disappeared within eight days. Trypanosomata were not to be seen in the blood stained fluid which failed to infect rats and rabbits.

Experiment 3.—A young mare, No. 71, received a single dose of 90 c.c. of serum on January 7, 1908. In July following, she was bred to a healthy stallion, and, a month later, was inoculated, August 29 (this inoculation, and that of the same date in experiments 1 and 2, being with 100 c.c. of blood drawn during a period of plaque eruption). No evidence of infection followed. The mare's health has not varied from normal and she has recently given birth, after full term, to a strong and well developed foal.

Mares Nos. 66 and 67 were also covered by the same stallion, between the first and second inoculations. The mares did not become pregnant and the stallion was not infected.

In experiment 1, it would appear that the animal was protected for about four months, and, further, that though inoculation in the 8th month was successful, the infection is easily tolerated and may very possibly result in an active immunity.

In experiment 2, the preventive value of the serum was still better indicated; there was not the slightest suspicion of infection for 13 months after the 1st inoculation and for 7 months after the 2nd inoculation and 3rd, that is, for 15 months after the preventive treatment. The recent appearance of an œdematous swelling under the abdomen must be regarded with suspicion and it makes it doubtful whether complete protection was or was not afforded.

In the above experiments it was positively known that numerous living trypanosomata were inoculated, but in experiment 3 only blood from the main circulation of an animal exhibiting cutaneous plaques was injected and blood so drawn is not always infective. At all events it is unlikely that failure of infection was due entirely to the single protective dose of serum given nearly 8 months previously.

Had laboratory animals, including dogs, shown themselves susceptible to dourine, they would, of course, have been used during the above experiments for subinoculations, but as they have always appeared refractory throughout this investigation, it would have been useless work to have employed them for the purpose of testing an apparent immunity or recovery. The expense of using healthy horses to the number required would have been great, and, even had it been done, failure to infect them could not have been accepted as a criterion of absolute immunity or permanent recovery, for the parasites of dourine, if they are retained, are more likely to have their resting place somewhere in the tissues than in the blood system.

There is considerable discrepancy of opinion as to immunity from dourine, due, in great measure, to the variations in virulence of the several varieties on which observations and experiments have been carried out in the different countries and laboratories. Instances of local and general immunity have been recorded (Nobarro's Edition of Laveran and Sesnil's 'Trypanosomes et Trypanosomiases'). The immunity produced in dourine in an organism in the natural process of recovery is an active one, brought about by phagocytosis, that, due to drug treatment, is more in the nature of a tolerance and not lasting. The results of investigation into immunity in dourine, by Uhlenhuth and Woithe (Sleeping Sickness Bulletin No. 4, page 143, abstracted) were negative. They have not been able to immunize animals actively or passively, their strain being a very lethal one.

REMARKS ON THE PARASITE OF DOURINE.

(1) *Is trypanosoma equiperdum a true blood parasite?*

When vast numbers of trypanosomata, several in each microscopic field, have been present in œdematous fluids from the sexual organs or from plaques, a careful search of the blood from the tips of the ears, from the tail and from the main circulation has, in my hands, always been in vain, and, similarly, when examining pure blood taken at frequent intervals covering attacks of fever as well as during the intermissions. The fact that the inoculation or direct transfusion of a large amount of blood is sometimes infective does not, I think, necessarily indicate that the trypanosome is developed in the blood stream, but, coupled with other facts, rather that it has escaped destruction elsewhere and been carried there along with the fluids that are so rapidly formed and absorbed in the local areas in which, especially in the early stages of infection, the parasites develop in such great numbers. The sparseness or absence of parasites in the main circulation has been commented upon by all who have searched for them there, even in equines infected with the most virulent strain of dourine. Thus, Lingard states: 'Except during the height of the eruption of plaques it is unusual during the course of dourine, to find on microscopical examination, the mature trypanosoma in the blood of the general circulation. . . . . .in an animal where the plaques are numerous, when one or more of them are in constant process of change, and their contents are being frequently voided into the general circulation, the inoculation of that animal's blood into susceptible animals is then of a positive character, ... whereas during a long intermission a dose 100 times as large. . . . . .may prove unsuccessful.'

The natural course of dourine in the horse is a very chronic one and, in the earlier stages, is usually sharply defined by an alternation of augmentation and diminution

'Report on Dourine,' by A. Lingard, 1905.

of œdematous swellings, involving the external genitals and very intimately related with the alteration of presence and absence of trypanosomata in the fluids of tissues of those organs and with paroxysms of fever.

A local inoculation of trypanosomata, particularly in the labium pudendi, is followed by a secondary swelling, the parasites developing 'in situ,', and, usually within 24 hours of the maximum, that is, when the parasites are most numerous, there is a rapid rise in temperature. Shortly after the maximum is reached the parasites are rapidly destroyed and large numbers of macrophage cells may be seen containing the remains of many trypanosomes. The contents of the swelling are gradually absorbed, but seldom before complete reduction does the temperature return to normal. The above phenomena may recur and be witnessed again and again at intervals of from a few days to several weeks during the first few months of infection. In the mares and fillies, less so in the male sex, a paroxysm of fever can almost invariably be associated with tumefaction of the genitals, but I am unable to support the view that it is due to a migration of trypanosomata from their local situation and their fresh development in the blood stream. On the contrary, I believe that the fever, and, later on, and to a great extent, the lesions of the central nervous system, are due to the toxins that are taken up and distributed by the blood. As stated elsewhere, plaques are not a common feature of the Canadian variety of dourine; in the few animals in which I have witnessed a succession of plaques, the eruption was not associated with definite paroxysms of fever, but with a slight and more or less persistent elevation of temperature. This might be explained, in part, from the fact the plaques occur in a comparatively late stage of infection and when reaction to the toxins is less marked or of a different nature, and in part, that the area involved in a plaque and the total number of parasites that develop there is probably very much less than that in the sexual organs. Little or nothing is known of the development of trypanosoma equiperdum in the internal organs of the horse; it is significant that microscopical examinations of the internal fluids or tissues of horses destroyed in different stages of the disease or of those dying from it, are almost invariably (in my hands, always), negative in searching for the parasite.

According to Lingard (*loc. cit.*), in animals succumbing to an acute attack of the disease, accompanied by nervous symptoms, developmental forms of the trypanosome occur in the cerebro-spinal fluid.

Some conclusions drawn by Laveran and Mesnil[1] with reference to the normal habitat of the dourine trypanosome appear open to question. These observers state that 'the fluid which escapes immediately after puncturing the œdematous swellings or plaques appears not to contain the parasite, but if this fluid be tinged with blood the parasite may be found in it, and the more blood there is present the more numerous are the trypanosomes. Two conclusions may be drawn from these facts; first, that *the trypanosome is a true blood parasite;* and, secondly, that very probably the swellings and cutaneous plaques are due to embolism *caused by masses of the parasite blocking the small blood vessels.*'

A photomicrograph of an embolism produced as described above would be of much interest and should not be very difficult to obtain if it really exists, but no one, so far as I am aware, has ever actually observed such an embolism in microscopical sections of the tissues involved. No such condition exists in the sectional series that I have prepared from small portions of tissues removed from the living animal, these portions being from œdematous areas and containing numerous trypanosomata, as was ascertained previous to removal, by puncture and examination. As to the observation that the more blood there is present the more numerous are the trypanosomes, I have to give a quite contrary experience. In the many hundreds of preparations that I have examined I have invariably found that the *less* blood there is present the more numerous are the parasites. In the stained specimens containing the greatest

[1] Nabarro's Edition of Laveran & Mesnil's 'Trypanosomes et Trypanosomiases.'

abundance of parasites, occurring singly, in pairs and together in agglomerations, one may search for quite a time without finding a single red blood cell. In one specimen containing thousands of trypanosomes I am unable to find one red cell. These preparations, however, contain large numbers of leucocytes, principally mononuclears and lymphocytes, and macrophage cells; various stages of the inclusion and digestion of trypanosomes may be seen.

(2) *The role of phagocytosis in dourine.*

Leucocytosis of the blood in trypanosome infections has been noted by many observers, but rarely connected with the fate of the parasites. Laveran and Mesnil found that the leucocytes of immunized rats engulfed living trypanosomes (T. lewesi). Uhlenhuth and Woithe consider that phagocytosis plays no role in the killing of the parasites (dourine)[1], Yakimoff agreeing that there is no direct connection between the leucocytosis and disappearance of the trypanosomes. That the parasites in trypanosomiasis of Gambrian horses underwent phagocytosis was suspected by Thiroux and Teppaz.[2]

A very active phagocytosis, sometimes associated with agglutination, occurs in the cutaneous plaques and œdematous swellings of the genital organs, in the horse. I have observed it repeatedly in fresh preparations and then added confirmation that the phenomena occurred 'in situ' and not 'in vitro' by staining and examining preparations smeared at the moment the fluid escaped from the puncture and dried instantaneously.

Phagocytosis takes place for but a very brief period and only when a certain stage in the multiplication of the trypanosomata is reached, that is, just at or closely after the maximum. In order to make the observation the animal must be kept under constant watch and the œdematous swelling, as soon as it becomes apparent, punctured with a very fine needle; it is important to interfere as little as possible with the swelling, to draw off only sufficient fluid necessary to make the examination and not to puncture a blood vessel, for the escape of blood into the part not only dilutes the œdematous fluids, making the search for the parasites more tedious, but seriously alters the course of events. The period of time between the commencement of the swelling and the highest stage of multiplication of the parasite seems to vary considerably: it may be but a few hours or it may extend to two days or over, so that it is often necessary to repeat the examination at frequent intervals. In proportion to the increase in numbers of the trypanosome so do the leucocytes invade the part, probably supplying the agglutinating substance, for at about the time of the maximum the parasites may be seen in agglomerations, posterior extremities centrally, flagella peripherally; individually, they assume the club-shaped, tadpole or stumpy forms; the macrophages now take up their role, engulfing both leucocytes and trypanosomes, the latter being digested so rapidly that in a few hours not even their remains can be made out. It is worth mentioning, moreover, that these ravenous cells appear to be responsible for the leucodermic patches that are so frequently associated with recurrences of genital tumefaction, at least, they carry away the colouring matter from these denuded areas. When depigmentation first occurs, the œdematous fluid of that part contains vast numbers of macrophagus loaded down with blackish granules; in smearing the fluid many of the cells are ruptured and masses of their granular contents may be seen lying about them.

I have found it more difficult to observe phagocytosis in the plaques than in the œdematous areas of the vagina, anus, and labia pudendi, and that it can best be studied in the latter and during the occurrence of the secondary swelling that follows inoculation or in the first and second recurrence of it. It is a curious fact that

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[1] Sleeping Sickness Bulletin, No. 4, pp. 143 and 150.

[2] Thiroux & Teppaz.—'Animal Trypanosomiases in Senegal.' Jour. Trop. Vet. Sci., Vol. II, No. 4, p.421.

at this time, that is, the earliest stages of infection, the parasites have appeared in far greater numbers than, with few exceptions, ever afterwards. Further, all my observations of phagocytosis have been made in mares and fillies, in cases very chronic but not one as yet fatal.

I conclude that in cases of active immunity in dourine the process is brought about by phagocytosis and in association with agglutination. Dourine in Canada is remarkable for its great chronicity and intermittent character; we seldom see a case of acute infection. In other countries, in animals infected with one of the more virulent varieties, and in rats and mice in which, from all accounts, infection is always acute, phagocytosis does not play any notable part, probably. It would appear that the more virulent the strain the more capable it becomes of living in the blood stream. Observations on the trypanosomata of Canadian dourine do not lead one to regard them as true blood parasites, but rather that the few occasionally present in the blood have been brought there with the overflow from reservoirs or active colonies, situated outside of that medium, in the sexual organs, mucous membranes, in or beneath the skin, the humours of the eye, &c. It is not unlikely that a somewhat similar distribution may occur in other trypanosome diseases of man and domesticated animals, affording a possible explanation of the failure of drug treatment in large animals aiming at disinfection of the blood, which appears more or less successful in curing infections in rats and mice in which the trypanosoma is more distinctly a blood parasite.

(iii) *Vitality of trypanosoma equiperdum under artificial conditions.*

All observations given below were made upon cover-glass preparations sealed with vaseline.

Trypanosome—containing fluid.	Dilutant.	Temperature.	Longest duration of life.
			Day.
Vaginal secretion		22° C.	¼
Œdema fluid		22° C.	1
"		On ice	1½
"	Citrate solution	22° C.	1½
"	" "	On ice	3
"	Blood of mouse	22° C.	¼
"	Serum of rabbit	22° C.	½
"	" healthy horse	22° C.	½
"	" dourined "	22° C.	½
"	" 'locoed' heifer	22° C.	3
"	" "	37° C.	2
"	Extract of testicles	22° C.	1
"	" spleen	22° C.	½
"	" liver	22° C.	½
"	" lymph glands	22° C.	½

As a result of these observations, repeated one or more times, it was surprising to find that the trypanosomata lived longest, at room temperature, in the serum of a heifer that was showing symptoms of 'loco' disease. Further, in these preparations, equal parts of œdematous trypanosome, containing fluid and serum, the parasites retained their power of actual locomotion up to 60 hours, moving in and out of the microscopic field, and, had it not been for the contamination with bacteria, life would probably have been further prolonged; as it was, they continued to writhe and squirm up to the 72nd hour.

Diluted with citrate solution and kept on ice, a similar length of time elapsed before complete immobility. But in this solution and in all of the others tried, apart

from the serum of the heifer, in less than one hour the parasites had ceased to move from place to place. They kept their position, struggling with a leucocyte or with one another, never multiplying but rapidly becoming less and less in number. In the preparations containing the serum of the heifer, at times, pairs of undersized but exceedingly active trypanosomes were seen, so rapid were their movements that they could scarcely be kept within the field of view and it was thought that multiplication was actually taking place.

Attempts to cultivate the trypanosome upon blood-agar and upon agar prepared with extracts of the liver, spleen, testicles and lymph glands were all unsuccessful.

DIAGNOSIS.

The Plaque, or cutaneous symptom of Dourine and its position in the diagnosis of the disease.

The plaques or patchy infiltrations of the skin have been given a position of such paramount importance in the clinical manifestation and diagnosis of dourine, that it seems necessary, in this present communication, to include observations upon this classical sign.

While it appears unquestioned that plaque-eruption is the most generally marked symptom of the disease that it is 'the only pathognomoric symptom' meets with some qualification.

Lingard says: 'It is not absolutely pathognomoric, as an animal may pass through an attack and eventually succumb to paralysis and the trypanosoma be demonstrated in other fluids, without the animal exhibiting any cutaneous symptom.'

Pease, in describing a disease simulating dourine caused by Filaria, states: 'It is not by any means an uncommon thing to witness the appearance of plaques closely simulating those of dourine on various parts of the skin, and nothing to account for them but the presence of numerous filarial embryos in material taken from them by puncture.'

According to all accounts, in Algeria and India, in the course of dourine there is usually to be observed an eruption of plaques occurring singly or in successive crops and during a period which it is frequently possible to subdivide into alternating periods of paroxysm and intermission. Laveran and Mesnil (Schneider and Buffard) give this period as commencing forty to forty-five days, some times two months, after the infecting coitus. In Lingard's cases plaques appeared in the majority of instances in mares and in a few stallions from the 24th to the 34th day after the first covering or inoculation, while in the majority of stallions they appeared at a much later date. Lingard gives the total number of plaques observed in 13 equines as 443, an average of about 34.

A stallion at the Imperial Bacteriological Laboratory, Mugtesar, India, presented 156 cutaneous plaques during the course of its illness.

A peculiar case of plaque eruption in a stallion—'ulcerous plaques, analagous to those of syphilis in man,'—is reported from Roumania by Motas, whom I quote as follows:—'On July 26, ... In the region of the metacarpal phalangeal articulation there existed a plaque. After two months, there existed a plaque on all the limbs in the region indicated; they were rounded in form, of a granular aspect; the borders ill-defined; on the surface there was a little purulent secretion. The largest did not exceed that of a 5-franc piece. On the metacarpo-phalangeal articulations of the front and hind left limbs, the plaque persisted until the death of the animal (24 Oct., 1908), resisting entirely the treatment employed during three months. We also observed, on the external face of the anterior limbs, nodular eruptions which developed later into little abscesses.' Trypanosomes were found in the œdema of the sheath; it is not stated whether they were in evidence in the fluids of 'ulcerous plaques.'

Dourine, in the different countries in which it exists, varies greatly in virulence. Here, in Alberta, it is, on the whole, much less virulent than in Algeria and India, and the classical symptom—plaque-eruption—less constant, indeed, of comparatively rare occurrence. The period of plaque eruption represents the *second stage* of dourine, the first appearance of a plaque indicating that the parasite is no longer localized to the region of its entrance, but is circulating in the blood or body fluids. This 'second stage' or generalization of the disease, however, may be reached and run its course without the presentation of a single plaque, or, again, it may be indefinitely delayed or never reached at all. Local changes—of the genitalia—may be the only signs or symptoms presented during a period varying from a few weeks to many months or several years. These may persist, fluctuate or spontaneously disappear without the sequence of plaques and a general infection.

TABLE I.—Showing the total numbers and the period of eruption of cutaneous plaqaes. (The table includes all of the experimentally infected equines and a few naturally infected animals that have been under a close and prolonged observation.)

Animal number.	Plaque Eruption.				Days between inoculation and death.	Survival March 31, 1909.
	Total number of plaques.	Eruptive period. in days.	Day after inoculation.			
			First observation	Last observation		
26	1	3	631st	633rd	.....	862
27	1	1	235th	.....	513	
39	1	4	71st	75th	139	
29	14	55	541st	596th	.....	774
41	29	94	544th	638th	.....	774
43	Nil.	.....	.....	.....	.....	708
70	"	.....	.....	.....	.....	543
69	"	.....	.....	.....	.....	216
1f	"	.....	.....	.....	.....	244
3f	"	.....	.....	.....	.....	228
5f	"	.....	.....	.....	.....	217
6f	"	.....	.....	.....	.....	23
9	"	.....	.....	.....	.....	774
7	"	.....	.....	.....	.....	769
17	"	.....	.....	.....	.....	674
66	8	98	18th	116th	.....	216
67	Nil.	.....	.....	.....	.....	422
71	"	.....	.....	.....	.....	214
(a)						
36	8	374	128th	502nd	.....	958
42	7	6	320th	326th	340	
21	Nil.	.....	.....	.....	.....	869
22	"	.....	.....	.....	.....	869
23	"	.....	.....	.....	.....	869
24	"	.....	.....	.....	.....	869
25	"	.....	.....	.....	.....	869
33	"	.....	.....	.....	252	
35	"	.....	.....	.....	422	
74	"	.....	.....	.....	.....	610
75	"	.....	.....	.....	.....	552
76	"	.....	.....	.....	.....	552
82	"	.....	.....	.....	.....	552

(a) *Naturally acquired Dourine.*—For animals 36 and 42 instead of 'inoculation' read 'probable date of infection' and for the remainder substitute 'first day of observation.'

Trypanosomata multiplying at the seat of a subcutaneous inoculation give rise, in from 10—30 days, to an œdematous swelling which may closely resemble a true plaque, but which can only be regarded as a local symptom and not a sign of general infection. For this reason the 'inoculation plaque' figuring in connection with animals Nos. 29, 39 and 3f is not included in the accompanying table (I).

Animals Nos. 7, 17, 67 and 71 have not exhibited clinical symptoms and proof of infection is wanting; these and No. 6f, in which the duration of infection is only 24 days need no further consideration at this time.

Plaque eruption, then, has been witnessed in—

(*a*) Six out of thirteen equines experimentally infected, and in

(*b*) Two out of a large number of equines naturally infected. (Many of the latter, however, not mentioned in above table, have not been held under a sufficiently long or constant period of observation to warrant a conclusion that plaques never occurred.)

The total number of plaques witnessed in these 8 animals is 69, and of these—

Eleven plaques occurred between the 1st and 6th month of infection.

Ten plaques occurred between the 7th and 12th month of infection.

Seven plaques occurred between the 13th and 18th month of infection.

Forty-one plaques occurred between the 19th and 24th month of infection.

Again, of the 8 animals that exhibited a total of 69 plaques, 5 presented but a single plaque apiece, 2 presented but 8 plaques apiece, 1 animal presented 7 plaques, 1 animal presented 14 plaques, and 1 animal presented 29 plaques.

In 5 of the surviving experimental equines in which the duration of infection is less than one year, plaque eruption has not yet taken place and may likely occur at a later date.

A case of some interest that might be mentioned here is that of a young mare which has been under the daily observation of one of our dourine inspectors (Dr. M. V. Gallivan) for nearly two years and which I have examined at very frequent intervals. This animal has exhibited 14 plaques, occurring in 4 paroxysms, which, with the intervals between, occupy a period of nearly six months. For at least a year prior to the eruption of plaques the animal had not been covered by a stallion; it is indeed doubtful that the mare has ever been bred at all. She has been used as a light driver or roadster during the two years of observation and has made many long, exhausting trips, but no clinical symptom of dourine other than the plaques has ever been noted. The puncture fluid of five of the plaques I carefully searched, without finding a trypanosome or anything to account for their presence.

The case of animal No. 26 is especially noteworthy. This filly received three separate inoculations of the blood of an infected stallion. On the 631st day following, in the 21st month, a single plaque appeared. Trypanosomata were then demonstrated in the œdematous fluid obtained on puncture. During the course of infection the filly has usually presented a rather undernourished condition, and, rarely, a slightly stiffened muscular action, but neither before nor since the eruption of this lone plaque have clinical symptoms been noted and on no other occasion were trypanosomes found present.

The eruption of fourteen plaques on animal No. 29 commenced after a profuse blood-letting, upon the 4th day following the operation, and was probably induced by this means. This eruption and that of twenty-nine plaques on animal No. 41 was very typical, though not occurring until after the 18th month of infection, and was closely watched and studied.

Regarding the position of these 43 plaques, 18 of them occurred upon the right side, 12 upon the left, 6 under the abdomen, 3 under the chest, 2 in the region of the stifle, 1 on the hind-quarter and 1 on the inner side of the thigh. None were seen upon the front-quarters, the neck, chest or withers.

Five plaques recurred after intervals of 4, 5, 2, 6 and 7 days, respectively.

The average size was from 1½ to 1¾ inches in diameter, ⅜ to ⅝ of an inch in thickness or elevation. The great majority of the plaques were not over 2½ inches or under 1 inch in diameter, though variations from ¾ of an inch to 6½ inches were met with.

The types or different forms of plaques observed included (*a*) the 'classical plaque'—'as if a thin disc of metal had been introduced under the skin' (Lingard); (*b*) the œdematous patch, circular and rounded, pitting upon steady pressure; (*c*) the œdematous plaque with a flat or hollowed centre and raised periphery; and (*d*) the crescentic, double and dumb-bell-shaped plaques.

The type of plaque, in my experience, depends to a great extent upon the stage in its eruption in which it is witnessed. If observed early enough it will almost surely possess characteristic features—the firm, unyielding, even elevation of the skin—of the first-named type. But, later on, it may assume one, or in turn, several of the other variations in type or form—modifications of the original type. The latter were never observed to precede or change back to the former, though a plaque may be entirely absorbed and recur at the same spot in its original form.

For convenience in description, the elevation of a plaque may be divided into three stages:—

1. The stage of eruption and augmentation.
2. The stage of transmutation or transformation.
3. The stage of diminution and absorption.

(1) The swelling is circular in outline, has a flat or slightly convex surface and does not yield to ordinary pressure. It is not uncommon to note a considerable emanation of heat from the part; at times there is a slight irritation present, the area may be moist with sweat, the hairs standing out erect; œdema is absent. Early in this stage the fluid contents of the swelling resemble normal blood, becoming increasingly thinned or diluted with plasma as the second stage is approached. Under the influence of sudden and vigorous exercise the evolution of a plaque may be cut short and the swelling be rapidly absorbed, but this is not the rule, the majority of plaques completing their cycle or definite series of events.

(2) The maximum size of the swelling or beginning of the second stage is reached in from 18 to 40 hours after eruption and continues for a period of 6 hours to 24 hours usually, sometimes for several days, with slight fluctuations. The plaque is cold and free from irritation; needle punctures may be made and frequently repeated with but slight objection upon the animal's part. The fluid that exudes or is squeezed from the puncture is quite clear and colourless, or contains but faint traces of blood. The swelling loses its firmness and resistance, becomes more or less œdematous and assumes a different form, but without actual decrease in area.

(3) Diminution in size or absorption may take place rapidly, in from 12 to 24 hours, or in even less time when the animal is given sharp exercise after a forced period of rest. In an animal kept at rest the œdematous type of plaque persisted, with more or less fluctuation and variation in form, for several, sometimes for 8 to 10 and on one occasion for 15 days. During this period the plaque may present a depressed centre owing to partial absorption of that part of the swelling, and, similarly, when only certain portions of a plaque are reduced at one time, it assumes a semi-circular, crescentic or other irregular shape. The skin over the region of a plaque that has persisted for several days and has then been completely reduced may remain slightly hardened, not elevated, for a number of days longer.

The fluids of 26 plaques (on animals 29 and 41) were examined for trypanosomata and the parasites were found in the fluids of 18 of them. Usually they were scanty in numbers, rarely, they were seen to be very numerous—3 to 5 trypanosomes to each field of the microscope. The most favourable time during the evolution of a plaque

for the observation of the parasite proved to be just before the maximum swelling was reached and when the fluid had become clear or showed only a faint tinge of blood. However, it is impossible to find them present day after day, in fluid drawn from the same plaque. In a plaque that persisted for 9 days the parasites were found upon the 1st, 4th, 5th, 6th and 7th day of observation, and in one of 7 days' duration, on the 1st, 4th and 5th day. Not uncommonly they were found in the fluid of a plaque from the 2nd to the 3rd day of eruption.

Plaques, as a rule, have already existed several hours when first observed; they should therefore be punctured and the fluid examined as early as possible, and, if the result is negative, the operation repeated at intervals of two to three hours until a positive result is obtained, or until the plaque disappears.

While plaque eruption indicates a generalized infection, general symptoms, at this stage, may be surprisingly few, ill-defined or absent. In animal No. 41, the temperature curve was slightly but more or less persistently raised, varying between 100 and 102 degrees Fahrenheit. For the period of four months prior to the first appearance of plaque eruption there had been an absence of clinical symptoms, local or general. On the 24th day of the eruption, simultaneously with the presentation of the 8th plaque there occurred a severe exacerbation of genital symptoms, rapid unilateral swelling of the vulva and a pronouncedly œdematous mucous membrane; also, lesions of the eyeball and eyelid affecting one eye. The plaque eruption covered a period of 94 days, during which, from the 24th to the 34th day the foregoing symptoms were present; they then gradually subsided and at length, before the eruption of the 29th and last plaque, gradually disappeared.

Very similar observations were made upon animal No. 29; in this case the eye lesions were more severe and persisted longer, appearing simultaneously with the first plaque and existing until the 21st day of the full period of eruption. Lesions of the genital organs were absent.

There was slight muscular weakness; inco-ordination was not apparent and in neither case has the 'third stage' of the disease (emaciation, paraplegic symptoms, &c.) supervened or followed as a result of the generalized infection. On the contrary, the disease has again assumed a latent or dormant form and the animals a normal aspect. At the present time—the 26th month of infection—six months after the termination of the cutaneous symptoms, the general health and condition is very fair, and clinical symptoms are entirely absent.

In another case, however, in a naturally infected mare (No. 42, Table I), after a long period of latency seven plaques suddenly appeared, the disease then running a very acute course. Paralysis, at first of the eye, ear and right side of the head, soon became general and caused death in a few days or 20 days from date of eruption of the first plaque.

In six of the animals (Nos. 70, 3f, 9, 33, 35 and 82) there occurred subcutaneous œdema of the most dependent parts of the abdomen; these animals did not exhibit plaques. In three of the six cases the œdematous swelling was absorbed and did not recur, in the other three it was marked by alternating paroxysms and intermissions.

Briefly, in conclusion, the cutaneous symptom of dourine—the plaque or plaques —is by no means of frequent occurrence, but when present is reliable evidence of the presence of the disease in Alberta.

Probably 50 per cent of infected equines never exhibit this symptom; among those that do the eruption may be limited to a lone plaque, or, single plaques occurring very rarely—at long intervals of time, many months to a year or more—and, thus, very easily escape detection.

In but a comparatively few cases can there be witnessed a typical eruption—a group or succession—of plaques.

The period of evolution of a plaque occupies seldom less than three days, usually from four to five, sometimes from eight to ten, and, rarely, up to fifteen days.

The period between the infecting coitus or inoculation and the appearance of the first plaque was found to vary from one month to 21 months; the majority of the plaques occurred subsequent to the 18th month of the disease.

Trypanosomata may be constantly found present in the fluid of a plaque, provided the preparations are obtained in the stage of augmentation; less constantly they may be found present in the later stages or changes.

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ŒDEMATOUS CONDITIONS OTHER THAN PLAQUES.

Localized œdema is the sign above all others that should lead one to suspect a possible dourine infection. In the foregoing I have dealt fully with the plaques and briefly noted the presence of large œdematous swellings under the abdomen; the latter condition, in stallions, is usually associated with œdema of the genital organs, in mares it may occur quite independently of any other notable symptom, but in any case, its appearance is as uncertain as that of the plaques and then only in a comparatively late stage of the disease.

Excepting in very advanced cases coming under late observation and marked by emaciation and paralysis, I have yet to see a case of dourine in the horse, that, if kept under close and prolonged watch, has not exhibited at one time or another, or periodically, local œdema, by which I refer in particular to œdema of the external genitals.

Directly after the incubation interval and for the next few months more than at any other time, is a mare most likely to infect a covering stallion, for it is at such time that the parasites are present in greatest numbers in the vagina; later on, they may reappear there on rare occasions or may never again give an indication of their presence. Obviously, then, it is of the greatest importance to be able to detect an infection in the early stages, but in order to do so one has to depend wholly on (1) *genital symptoms* and (2) *body temperature.*

(1) There is *only one genital symptom that has a value in diagnosis, and that is, œdema.* Leucodermic patches on the external genitals, perinæum and anus, and depigmentation of the clitoris, are frequently associated with this symptom and occur as a sequel to or result of trypanosome development, œdema and phagocytosis in the tissues of the parts affected. They may occur, however, from other causes that are in no way connected with dourine, for one knows that the normal colouration in healthy horses varies considerably and that anomalies of pigmentation are quite common. The depigmentation in dourine begins in small patches, it gradually spreads and is frequently transitory; during lengthy intermissions in the course of infection the parts may totally regain their colouring matter.

Whitish spots on the margins or just inside of the vulva are to be found in both dourined and non-dourined mares. These spots or small patches have a finely granular surface which is readily inclined to peel off. Deep down in these lesions, or after a scrubbing and thorough washing, there are to be found masses and coils of a slender, spirochaetae-like organism, small numbers of which can often be found in the vaginal

secretion of healthy mares. This organism, probably, becomes slightly pathogenic to tissues weakened by dourine or from various other causes; it multiplies, not only in these whitened spots (which are not to be confused with depigmentation proper, where there is no loss or shedding of the cellular elements), but also in ulcers when these are found present and is probably the direct cause of either lesion.

In not one of the animals experimentally infected with dourine have I ever seen a vesicle, an ulcer or a cicatrix, lesions which are apt, mistakenly, I believe, to be attributed to dourine. Such lesions I have rarely seen in a few cases of natural infection, but regard them as independent of the disease under study.

Vaginal discharge is another unreliable sign, and, more frequently than not, is an absent one in straight dourine.

But an intermittent or remittent tumefaction of the vulva, of the sheath in stallions, the anus, plaque-like swellings extending from the genitals down the inside of the thighs, and an œdematous, swollen appearance of the vaginal or urethral mucous membrane are signs of probable infection.

The earlier the stage in the disease, in mares, the more clearly defined are the exacerbations of œdema; this is the rule when the incubation interval has been a short one, but when prolonged there are exceptions to it. In stallions, the first tumefactions of the sheath may be very slight, the paroxysms and intermissions becoming better marked as the disease advances.

In mares, again, the recurrences of œdematous swellings vary from their original location, thus, first one side of the vulva, then the other, only the lowest portion at the inferior commisure, then the anus, the inner side of one thigh or buttock, presents, each in turn and after intervals of time of from one to four weeks, a well marked œdematous swelling, in any one of which, if examined in time, trypanosomata may be found. At first, the duration of each of these swellings is, usually, from 4 to 6 days, later on, they become more chromatic and fluctuating, less well defined; the period of remission or intermission lengthens out and the skin or tissues of the areas involved may remain thickened but flabby and with loosely hanging folds on either side of the vulva.

It is of interest to note that in a horse colt and several fillies there have been recurrences of anal œdema (trypanosomes present) long after tumefactions of the genitals had ceased. The anal œdema was associated with great irritation of the part, increased secretion, depigmentation, diarrhoea, and the passage of dysenteric stools.

[1] Recent literature contains a number of observations of lesions in the intestines, in trypanosome diseases, particularly of hæmorrhagic conditions. It may well be that in dourine, when the trypanosomes disappear from the genitalia and do not return they work their way into the intestinal walls, and that the passage of blood and mucous, and œdema of the anus, especially when no changes are apparent in the sexual organs, is a valuable sign of dourine infection.

Ocular Lesions.

These are valuable indications. We might place the time or period of their occurrence in an intermediary stage, between the primary or genital symptoms on the one side, plaques and lesions of the central nervous system on the other. As a rule, only one eye is affected; the first notable alteration is, usually, a drooping upper eyelid; this sign may be associated with or followed by photophobia, lachrymation, swollen lids, and, still later, by a bulging of the eyeball. I have seen such lesions come and go within a period of ten days, but usually they are very persistent. More rarely, a corneal opacity may develop, independently of the foregoing.

[1] Thiroux, Kérandel, Natton-Laurier. Bulletin de la Société de pathologie Exotique. Tome II, No. 6, pp 314-317. June, 1909.

Sexual power and procreation.

Mares may exhibit increased sexual desire; when it occurs, it is very plainly marked—a state of nymphomania—but in many mares it is not in the least apparent. Stallions are capable of connection up to late in the disease, although there may be a periodical loss of power. It is not unusual for infected mares to bear offspring.

Recovered mares can also be bred successfully, though a percentage remain sterile, some of the latter apparently losing all sexual instinct. (See table of breeding experiments, No. II, appended at end of report, and remarks on results of breeding experiments.)

Examination of Body Fluids for the Dourine Parasite.

The surest method of diagnosis is that which enables one to detect the parasite,—*T. equiperdum*. The finding of this parasite in infected animals is not quite such a difficult matter as generally claimed. The trouble is that it is considered too closely as a blood parasite, and too much blood examined. The examination of less blood and more œdematous fluids will give many more positive results.

Gland Palpitation and Puncture.

The method of gland puncture for demonstrating trypanosomes has proved very disappointing. Undoubtedly, in dourine, the superficial glands become very much enlarged, the submaxillary even more prominent and palpable than the inguinal or pectoral. However, one knows that healthy horses are extremely liable to glandular enlargement from very trivial or no apparent causes, so that, in suspected dourine, the sign has to be interpreted very cautiously.

Even when trypanosomes have been found in great numbers in the plaques and genital œdematous swellings, the method of gland puncture has failed to reveal them.

The relative value of postmortem findings.

In the late stages of disease a diagnosis can generally be arrived at on the well-known clinical symptoms:—loss of co-ordination, paralysis, &c.; when these characteristic symptoms are not presented, and the case is marked simply by a chronic progressive emaciation and enfeeblement, postmortem findings will be found of little value. One would naturally expect to find yellowish discolorations of the connective tissues, serous transudations and fibrinous deposits or growths in the large body cavities, a petechial spleen, damaged excretory organs, and marked changes in the blood-forming marrow—and one does find them, but, personally, I am unable to find in them anything that serves to differentiate the disease from other chronic wasting diseases. When signs of dourine are absent at an examination during life I greatly doubt the possibility of confirming the suspicions one may have held, by postmortem findings.

Note on serum-diagnosis. I can only say at present that while several very decided reactions were obtained from the injection of certain sera into animals affected with a latent or mild form of dourine, in other animals similarly affected, to all appearances, the reactions varied greatly or were nil.

A series of experiments was undertaken with dourine sera and rabbits, in order to ascertain the praecipitating properties of the sera, and if a praecipitin-test could be made available. The experiments were progressing nicely and a rabbit serum was obtained that praecipitated dourine serum markedly, but had little or no effect on normal horse serum, when—in the June flood of 1908—both rabbits and my whole storage of sera were swept away. Lack of time has prevented me from repeating these experiments.

SESSIONAL PAPER No. 15b

EXPERIMENTAL TREATMENT OF DOURINE IN HORSES.

Atoxyl—an organic compound of arsenic—was introduced in 1905 by Dr. Wolferstan Thomas,[1] of the Liverpool School of Tropical Medicine, as a curative agent in cases of Trypanosomiasis, in which, in the hands of various workers, it subsequently proved of great value.[2] Its success at first seemed so great that it was considered deserving of a trial in the treatment of the trypanosome disease of horses,—*Dourine*, then under investigation at the Experimental Station, Lethbridge, Alberta. The following experiments were undertaken in 1908:—

I.—TREATMENT BY ATOXYL.

Experiment 1.—A Clydesdale stallion (animal No. 35), about 1,800 lbs. (800 kilos) in body weight, in the final stages of naturally acquired dourine—probably the 19th to 20th month of the disease. The supply of atoxyl arrived too late to expect good results from its administration to this animal but trial doses were given with the object of viewing the effect they might have, however transient, at this stage of infection, the hopelessness of which was indicated by great muscular weakness and emaciation; enormous swellings, partly œdematous and partly organized, of the genitals and lower surfaces of the abdomen and chest; lesions of the eyes, articulations, &c.

Atoxyl injections, (20 per cent solution):—

Feb. 18, 1908, intravenous	1·0 gramme.
Feb. 20, 1908, intravenous	1·0 gramme.
Feb. 20, 1908, subcutaneous	1·0 gramme.
Feb. 23, 1908, intravenous	2·0 grammes.
	5·0 gramme.

The drug was given in a warm, freshly made 20 per cent solution in sterile normal saline as recommended by Breinl and Todd, for the treatment of sleeping sickness.

On the evening of February 20, 5 to 6 hours after the injection of the 2nd and 3rd doses of 1·0 gramme each, the animal became very restless and distressed—in marked contrast to its usual depressed wearied behaviour. At times there appeared to be colicky pains. The dose of atoxyl for such a large animal seemed proportionately small but the symptoms were very suggestive.

The following day the weakness was very great and the dullness amounted to almost lethargy. The condition improved somewhat on the next day, weakness was not so marked, volition had returned. On February 23, the 4th dose was given, 2-gms.; 6 to 7 hours later there was a recurrence of toxic symptoms; the extremities became cold, there was severe abdominal pain and death occurred 27 hours after the injection.

At the autopsy, in addition to the usual changes associated with chronic dourine, crimson hæmorrhagic patches were found profusely scattered over the coverings of the abdominal viscera.

So far was the disease advanced that, had the atoxyl not been given, the animal could scarcely have lived more than a few weeks.

Experiment 2.—A filly (animal No. 70) aged 2½ years, about 675 lbs. (300 kilos) in body weight.

Oct. 4, 1907—inoculated with *Trypanosoma equiperdum*. Incubation period, 14 days.

Feb. 1, 1908—trypanosomes still present in œdematous fluids of vaginal mucous membrane. An œdematous swelling upon the lower surface of the abdomen. Body is undernourished and there is a general appearance of weakness and ill-health.

Atoxyl injections (15 per cent solution):—

March 5, 1908, subcutaneous	0·75 grammes.
March 8, 1908, subcutaneous	1·50 grammes.
March 12, 1908, subcutaneous	2·00 grammes.
	4·25 grammes.

Shortly after this brief treatment symptoms rapidly disappeared and recovery became apparent. There has not been any sign of recurrence to date, more than a year after the injections of atoxyl. Trypanosomes have never again been found present in the blood or body fluids. From April to November, 1908, the submaxilliary glands were much enlarged; they were punctured at intervals and the juice examined but the parasites could never be observed.

The withdrawal of a large quantity of blood (an operation which is apt to give a fresh impetus to a latent infection of dourine). 5000 c.cm., on September 10, 1908, was without after effect in bringing on any symptoms or signs of a recurrence.

Experiment 3.—A gelding (animal No. 74) aged 4 years, about 1,125 lbs. (500 kilos.) in body weight. The duration of the disease and how it was acquired is not known. The animal was raised in a herd in which dourine was very prevalent (the stallion and a number of mares belonging to this herd had died of dourine and others found affected were destroyed) and exhibited the paralytic symptoms so generally and closely associated with dourine. Trypanosomes could not be observed. There was auto-agglutination of the red blood cells and the differential leucocytic count showed a lymphocytosis of 80·4 per cent.

The condition for over six months prior to the commencement of treatment was as follows:—Dragging of the hind quarters, knuckling of the fetlock joints, the points of the hind hoofs worn down; tenderness over the loins, loss of balance, the limbs apparently unable to afford a mechanical support to the body; a swaying, unsteady, tripping gait. There was a paralysis of the tail.

The condition was almost identical with that of a dourine infected mare which had frequently shown trypanosomes in her blood.

Atoxyl injections (15 per cent solution):—

April	7,	1908,	intramuscular	0·75 grammes.
"	9,	"	"	1·00 "
"	12,	"	"	1·00 "
"	14,	"	"	1·25 "
"	18,	"	"	1·50 "
"	24,	"	"	2·00 "
May	5,	"	"	2·50 "
				10·00

On cessation of treatment the body was better supported, the gait had slightly improved, the tail was held in a normal position and capable of voluntary movements.

On May 9 there appeared an œdematous swelling at the most dependant part of the abdomen; this was absorbed within three days.

During June the improvement was maintained and rather increased. In August there was a recurrence, the symptoms became more marked than ever, and the general condition worse. This was again followed by a slight improvement; for the past six months there has scarcely been any change and the condition now differs but little from that which obtained before treatment, one year ago.

II. TREATMENT BY ATOXYL AND MERCURY.

Experiment 4.—A mare (animal No. 76) about 12 years of age and 1,215 lbs. (540 kilos.) in weight, in all probability infected by the stallion mentioned in experi-

ment 1, by whom she was covered in August, 1906. The mare did not come under observation until a year later and then showed suspicious signs of dourine.

In December, 1907, definite symptoms were presented. There were various facial paralyses—ear, eye, nostril, under lip and throat. The gait was uncertain. The submaxilliary lymphatics were enlarged and the udder was much swollen (the mare had had no offspring for four years and was not then with foal). The body was undernourished, but not emaciated. There was no remission of symptoms until after the treatment given which was commenced in what was probably the 19th month of the disease. Trypanosomes could not be found.

Atoxyl injections (15 per cent solution):—

March 5, 1908,	intravenous	0·75	grammes.
" 9, "	"	0·75	"
" 9, "	subcutaneous	0·90	"
" 12, "	"	1·80	"
" 17, "	"	1·80	"
" 21, "	"	2·00	"

After this first course of atoxyl treatment the muscles of the affected ear and eye showed a partial recovery. There were then given:—

Mercury bichloride injections (0·5 per cent solution):—

March 28, 1908, intravenous.. .. .. 0·25 grammes (50 c.cm.)
April 1, " intramuscular .. .. .. 0·25 " " "
(in 4 injections.)

Very painful swellings resulted from the bichloride injections and there was administered as follows:—

Potassium Iodide—(by the mouth.)

April 3, 1908,	drench	6·0	grammes.
" 4, 1908,	"	6·0	"
" 5, 1908,	"	6·0	"

The swellings were soon absorbed and there were resumed—

Atoxyl injections (15 per cent solution):—

April, 7, 1908,	intravenous	0·75	grammes.
" 9, 1908,	"	0·90	"
" 14, 1908,	"	1·25	"
" 19, 1908,	"	1·50	"
" 25, 1908,	"	1·75	"
May 3, 1908,	"	1·85	"
" 12, 1908,	"	2·00	"
		10·00	"

Thus, during 10 weeks treatment, the mare received 18·0 grammes of atoxyl (in two courses), 0·5 grammes of mercury bichloride and 18·0 grammes of potassium iodide (in the interval between).

During May and June a steady all-round improvement was maintained, the paralyses gradually disappearing until a normal muscular control was regained.

It is now a year since the cessation of treatment and recovery is, at least, apparent.

In experiment 3, I have mentioned the case of a mare showing dourine paralyses or muscular inco-ordination similar to those described in the gelding, and which had furnished absolute proof of the infection by the presence of the trypansomes. This mare was naturally infected in the same month and year, August, 1906, and by

the same stallion as mentioned above in this experiment. She has not been given any treatment and may therefore be considered as a control animal. The results show that the treated mare is apparently cured while the control is in a wretched and hopeless condition and not likely to survive another six months. Nearly three years have elapsed since infection in either animal.

III.—TREATMENT BY ATOXYL AND DONOVAN'S SOLUTION.

Experiment 5.—A horse-foal (animal No. 3f.). Inoculated on August 16, 1908, when 7 weeks old. Trypanosomes appeared upon the 30th day following. Treatment was commenced upon the 112th day. During this interval there occurred paroxysmal fever and swelling of the genitals (sheath). The animal was between 5 and 6 months of age and about 225 lbs. in weight (100 kilos) when a *first course of treatment* was given as follows:—

Atoxyl injections (15 per cent solution):—

December	5, 1908,	intravenous	0·6 grammes.
"	8, 1908,	"	0·9 "
"	12, 1908,	subcutaneous	1·2 "
"	18, 1908,	intravenous	0·8 "
"	22, 1908,	"	1·2 "
"	26, 1908,	"	1·2 "
			5·9 "

The intermittent type of fever in this animal has been remarkable throughout the infection on account of the regularity and the likeness of the alternating paroxysms and intermissions. I do not know of any other case of dourine on record in which such a series of exacerbations of temperature have been shown.

Treatment was commenced upon the last day of a febrile paroxysm, probably the 5th in succession, of 6 days duration and which was preceded by an intermission of 16 days. It is noteworthy that the following intermission and paroxysm—during and in spite of treatment—is exactly the same in the number of days, 16 and 6, respectively. The next in succession—in the absence of treatment— occupied 29 and 5 days, respectively.

Second course of treatment:—

			Atoxyl.	Donovan's Solution.
Jan.	28, 1909,	intravenous	1·00 gm.	.....
"	31, 1909,	"	....	10·00 c. cm.
Feb.	6, 1909,	"	....	10·00 " "
"	15, 1909,	"	1·40 "	.....
"	17, 1909,	intramuscular	....	10·00 " "
"	21, 1909,	intravenous	1·50 "	.....
"	25, 1909,	intramuscular	1·00 "	.....
"	26, 1909,	"	....	10·00 " "
"	28, 1909,	"	0·80 "	.....
Mar.	3, 1909,	"	....	10·00 " "
"	5, 1909,	"	0·75 "	.....
"	8, 1909,	"	....	8·00 " "
"	13, 1909,	"	0·75 "	.....
			7·20 "	58·00 " "

The intermissions from, and paroxysms of fever during this second course of treatment were 13 and 6 days, 25 and 5 days, respectively.

The temperature, in each of the five paroxysms commencing with the one where atoxyl was first given, reached 105 degrees Fahrenheit, or over.

After a number of intravenous injections had been given painful swellings arose along the jugular furrows and intramuscular injections had to be substituted; these also were apt to cause some local irritation.

Eye symptoms were first observed during the interval between the two courses of treatment, since when they have never been absent.

The right eyeball protrudes more than its fellow, the lids are thickened and semi-paralyzed; there is dimness and, at times, weeping and a marked sensitiveness to light. Since treatment there has not been any recurrence of tumefaction of the genital organs, neither have cutaneous symptoms been presented. On cessation of treatment cerebro-spinal disturbance was plainly to be seen, and this is steadily increasing in intensity. Trypanosomes have been searched for during the febrile periods, but could not be observed.

As control-animals a filly-foal, a few months of age, and a 3-year-old filly were inoculated from the same source. In these animals, although there have been frequent recurrences of trypanosomes in the fluids of the swollen lamia pudendi and vaginal mucous membrane, the disease has made less progress than in the treated stud-colt. This is hardly surprising when it is remembered that in the stallion dourine seems to be invariably fatal, while mares may tolerate the infection for long and unknown periods, apparent recoveries not uncommon. However, in two fillies inoculated after further passages of the trypanosome through equines, the infection is very severe and similar to that which has occurred in the above animal.

SUMMARY OF RESULTS.

Experiment 1.—Atoxyl, in small doses, could not be tolerated by a stallion in the final stages of dourine. The drug produced toxic symptoms and was probably the immediate cause of death.

Experiment 2.—Atoxyl treatment in a filly in the 6th month of the disease was rapidly followed by disappearance of symptoms and apparent recovery.

Experiment 3.—Atoxyl treatment in a gelding showing paralytic symptoms of dourine resulted in a temporary improvement; recurrence followed in the 3rd month after cessation of treatment.

Experiment 4.—Atoxyl and mercury bichloride treatment, commenced in the 19th month of the disease in a mare showing paralytic symptoms of dourine, was followed by disappearance of symptoms and apparent recovery.

Experiment 5.—Atoxyl treatment, commenced in the 4th month, followed, after an interruption and in the 6th month, by atoxyl and Donovan's solution, entirely failed to arrest the steady progress of the disease in a young stud-colt (under one year of age).

Controls.—A mare, in control to experiment 4, appears to be dying of dourine. Two filly-foals—experiment 5—show marked but less severe symptoms. In two fillies inoculated later the disease is running a course almost parallel to that of the treated stud-colt. Trypanosomes are frequently to be found in all four fillies.

Recoveries.—Years must elapse before one can pronounce an absolute recovery from dourine. Wherever an expression of recovery or cure is used in this paper *apparent* is to be understood unless otherwise indicated.

General remarks on experimental treatment and our present means of testing a cure or recovery.

The observations in experiment 1 furnish additional evidence to what has recently been made known of the danger of administering atoxyl in an advanced stage of a trypanosome disease, where there is a probability of nephritis or degenerative changes in the kidneys and excretory organs.

In experiments 1 to 4, the doses given of atoxyl were proportionately small—commencing with 1. gm. or less and never exceeding 2·5 gms. In experiment 5 the doses of atoxyl were proportionately large, for, although 1·5 gm. was not exceeded as a single dose, such an amount for this animal, weighing from 100 to 125 kilos., would be equivalent to 6 gms. and over for a horse weighing 500 kilos.

Uhlenhuth, Hubener and Woithe[4], in treating animals infected with a very virulent strain of dourine, were able to check or weaken the disease in a horse by giving 5 gm. doses of atoxyl; the blood, however, remained infective for mice. The horse lived but 12 months, while the untreated, control horse died after four months. Larger doses than 5 gms. could not be given.

According to these authors,[5] 'As early as possible, as much as possible—is the fundamental law which holds unconditionally for the chemo-therapeutic treatment of the trypanosome diseases.'

In experiment 5, the above maxim was fairly well followed, but, nevertheless, the treatment did not appear to be of the slightest avail. In experiment 2, only three doses of atoxyl appeared to have the remarkable effect of aborting the disease. Was the retreat or recovery in this case a spontaneous one coincident with the injections of atoxyl, or did it directly originate in the trypanocide action of the drug?

It is possible there is a brief period, a particular phase of development in each of the trypanosome life cycles that are evolved in the course of dourine in the horse, especially in the early stages of infection, in which the parasite is particularly susceptible to atoxyl, and that if, perchance, the drug, is given for the *first time* during one of these ripe, physiological moments and before resistance has been acquired from its administration, say, during an interval of trypanosome inactivity, the destruction of the parasites is complete, not even the hypothetical 2 per cent surviving to restart the disease.

Moore, Nierenstein and Todd,[6] thinking there might be a resistant stage of the parasite which survived the first treatment by atoxyl, searched for a drug that might 'act upon the latent form of the trypanosome which must in all probability exist in blood or tissues while the active form is being held in abeyance by atoxyl or other drugs.' These observers found that mercury perchloride had a decided value in the treatment of Nagana-infected rats when its administration followed that of atoxyl (given alone mercury has little effect as a trypanocide), and suggested that the combined method be given a trial in natural trypanosome infections of man and animals. Later on, trying their method on Nagana-infected donkeys they failed to save them.

Only one year having elapsed since treatment in experiments 2 and 4, it is too early to speak with any certainty of the cure or recovery by atoxyl alone, in the one case, and by the combined method of atoxyl and mercury, in the other. (See foot note.)

The short series of experiments here given was only intended as a preliminary step, and was carried out with the hope that the results might furnish some indication and justification for a further line of work upon a larger scale.

It may serve to avoid errors in conclusions to mention again that the strains of dourine that I have been able to observe in Alberta, and to maintain by experimental inoculaton in horses, are much less virulent than those generally described in experiments conducted in European laboratories or of the Algerian and Indian varieties. Time and again the inoculation of dourine fluids, sometimes rich in trypanosomes, into dogs, rabbits, rats and mice has failed to produce an infection that could be

observed either by clinical symptoms or the presence of the parasites. It was considered useless, therefore, to carry out a number of sub-inoculations in connection with above experiments save in equines, and sufficient of these was not available. A few sub-inoculations were made in rats, in an experiment to ascertain if what appeared to be an 'atoxyl resistant strain' could infect these animals. The results were likewise negative.

It was considered advisable before trying a big series of experiments on the therepeutica of dourine to wait until the later results of experimental infections in untreated equines were obtainable, and until a strain exalted in virulence and lethal for laboratory animals could be employed. Only then would one be able to eliminate the very likely possibility of spontaneous recoveries and for sub-inoculations as a test of recoveries or of cures to have a definite value.

In experiment 2 I have mentioned blood-letting as apt to bring about a recurrence of the disease. Lingard[7] observed that in certain latent cases of dourine the loss of blood brought on an eruption of cutaneous plaques, and suggested that bleeding might be had recourse to as an aid in diagnosis. Bloodletting, when carried very far, I have repeatedly observed was followed by dourine symptoms, sometimes by severe exacerbations. In several instances, examination of the body-fluids (blood, mucous, œdema) at intervals after bloodletting enabled me to note the presence of trypanosomes in an animal in which all previous examinations had failed to reveal them.

Our present means of testing the cure of a trypanosome infection in man or animal are very limited and slender; animal inoculation and auto-agglutination of the red blood cells. In the former positive results only are of much value, as failure to infect may be due to one or more of a variety of causes, as, *e.g.*, the periodicity of trypanosomes in the blood and their likely absence from it at the time of the test inoculations or for long intervals during and following an apparently successful course of treatment.

The phenomenon of auto-agglutination of the red cells in trypanosome-containing blood has for long been known though but recently considered in the light of a test; its constancy in latent or tolerated infections may be doubted until more confirmation is forthcoming. It is unnecessary to enlarge upon the difficulty and importance in coming to a decision as to the reality of a cure or recovery, but it is here suggested that the simple means of bloodletting can be employed as an additional test and will be found of value in bringing on a recurrence of trypanosomes in the blood of animals which have made an apparent but not an actual recovery and in increasing the number of positive results from test inoculations made at intervals after bloodletting.

In Canada the evolution of dourine is very dilatory. Long periods of interruption occur in which the disease lies quiescent and unrecognized and in which the animal may maintain health and condition. It is known that these stages of tolerance may give way to a relapse but in some horses they appear to exist indefinitely. It is probable that in a large number of cases, in mares, the disease does actually die out; at all events certain of these animals condemned for dourine in 1904 and since held in quarantine are still alive and in excellent health and have not exhibited any recurrence during the 2½ years that they have been under my observation. Bloodletting has not induced symptoms; auto-agglutination of the red cells is not to be observed. Moreover, and as infected mares are usually credited with sterility or with aborting their young should they conceive, it may here be mentioned that 8 of

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Note.—In an abstract (Vety. Journal, p. 373, No. 409, Vol. 5) from a paper by Monad, 'Cure of a stallion suffering from dourine by means of atoxyl,' it would appear that a lapse of 170 days without any return of the illness was considered sufficient to indicate that a cure had taken place. Such an interval would be altogether too short in arriving at a similar conclusion in a case of Canadian dourine, in which recurrence may follow a six months' period of health.

these tolerant or recovered mares were bred to a healthy stallion in 1906, 4 becoming pregnant and foaling after normal term. In 1907, 13 mares, including the above 8. were bred to the same stallion (which had received a local disinfection after each service and remained healthy), 8 foals resulting. Again, in 1908, 14 mares, including the foregoing, were bred with the result of 9 foals. One mare died after a prolonged illness and emaciation, whether from dourine or not the symptoms did not clearly indicate. In one or two there has rarely been noted a slight transient suspicion of symptoms. In none has it been possible to detect the *T. equiperdum* and the majority are maintaining their healthy condition.

It is reasonable to believe in the possibility and the frequency of natural recoveries from dourine in Alberta, and that, assisted by a suitable treatment, a still greater number would recover and in less time.

Atoxyl, though a valuable trypanocide, is not the specific drug for trypanosomiasis as was at first indicated. Its employment alone is no longer recommended but it is advised in combination or alternation with other trypanocides, a number of which are now known and being exploited. Valuable trypanocide agents are found among the arsenical compounds, organic and inorganic; antimonial compounds, certain dyes and benzidin derivatives. Some of these are claimed to be the equal of Atoxyl in their action in rapidly driving the trypanosomes from the circulation. It is noteworthy, however, that remedies or methods of treatment that have cured rats and mice of acute trypanosome infections have not succeeded nearly so well in the chronic infections of man and the domesticated animals. In the former, complete disinfection of the blood seems to be possible but whether it can be attained in the latter is still a problem to be solved. At present, the therapeutic dose of any of the well known trypanocides seems perilously near to the toxic.

The trypanosomiases of man and animals are now receiving an exhaustive investigation at the hands of various governments and numerous laboratory workers throughout the world and there is reasonable hope and belief that their efforts will result in the discovery or invention of the means of successfully combatting them.

The bulk of the research work and experimental treatment of these diseases has been carried out with the purpose of finding a way to stop the ravages of Sleeping Sickness in man, the trypanosome scourge that continues to spread throughout Equatorial Africa, attacking both the black and the white races. Sleeping Sickness and dourine bear a marked similarity to one another in a number of respects—their great chronicity, the alternating periods of presence and absence of trypanosomes in the blood, their scantiness in numbers, difficulty of detection and diagnosis; the stages of apparent recovery, tolerance and relapse. Mott [8 & 9] found the histological changes in the nervous system in dourine analagous to those occurring in Sleeping Sickness. Uhlenhuth and Woithe[5] speak of the 'parallelism in these two diseases both in their nature and in the chemo-therapy.' Experiments on the one, therefore, have a decidedly practical significance in regard to experiments on the other, and, a specific remedy or method of treatment for the cure or prevention of the one will always merit a fair trial, with a probability of success, in the experimental treatment of the other.

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TABLE II.

Showing summary of breeding experiments, 1906-1909, with mares that (a) had apparently recovered from, (b) easily tolerated or seemed to be recovering from, and (c) were reinoculated, artificially, with a view to active immunization.

Number of mares bred.	1906–7. To healthy stallion (H).	1906–7. To Dourine Stallion (D).	1906–7. *Recurrence of symptoms.	1906–7. Offspring.	1907–8. To healthy stallion (H).	1907–8. To Dourine stallion (D).	1907–8. Recurrence of symptoms.	1907–8. Offspring.	1908–9. To healthy stallion (H).	1908–9. To Dourine stallion (D).	1908–9. Recurrence of symptoms.	1908–9. Offspring.	Remarks.
(a) 4..	Not bred.			....	H	....	....	1	H	....	....	1	Recovery maintained throughout.
(a) 5..	"			....	H	....	....	1	H	....	....	....	" " "
(a) 6..	H	....	....	1	H	....	?	1	H	....	died.		Emaciation and diarrhoea; no clear indication of Dourine.
(c) 7..	H	....	....	....	H	....	....	....	H	....	....	....	Apparently immune to repeated inoculations.
(a) 8..	H	....	....	1	H	....	....	1	H	....	?	....	Excellent health to March, 1909; recent failing, diarrhoea.
(a) 11..	H	....	....	....	H	....	....	1	H	....	....	1	Recovery maintained throughout.
(a) 15..	H	....	....	1	H	....	....	1	H	....	....	1	" " "
(a) 18..	H	....	....	1	H	....	....	....	Not bred.			....	" " "
(a) 19..	H	....	....	....	H	....	....	1	H	....	....	1	" " "
(a) 20..	H	....	....	....	H	....	....	....	H	....	....	....	" " "
(b) 24..	....	D	?	1	H	....	?	....	H	....	....	1	" " 1907-9.
(b) 13..	....	D	....	....	H	....	....	1	H	....	....	1	" " throughout.
(b) 14..	....	D	?	....	H	....	?	....	H	....	....	1	Recovery maintained though very slight local changes (?) noted.
(c) 17..	....	D	....	....	Not bred.			....	H	....	....	1	Apparently immune to repeated inoculations.
(b) 2..	....	D	?	....	....	D	?	....	H	....	....	1	Slightest local changes, 1906-7; excellent condition, 1908-9.
(b) 3..	....	D	?	....	....	D	?	....	Not bred.			....	Similar to preceding.
(b) 10..	....	D	?	....	....	D	....	....	"			....	Excellent condition throughout.
(c) 9..	....	D	s	....	....	D	s	....	..	"		....	Successfully reinfected in 1907. Apparent recovery, 1908-9.
	8	8		4 1	13	4		8	14			9	

"?"—Slight local changes of the genitals, none of which could be clearly referred to Dourine.

"s"—Recurrence of symptoms of Dourine.

For details of experiments with mares (c) Nos. 7, 9 and 17, see pp. 69

REMARKS ON THE RESULTS OF THE BREEDING EXPERIMENTS.

In another connection ('Experimental treatment, and present means of testing a cure or natural recovery). I have briefly mentioned the results of these breeding experiments. I have also considered under 'Immunity' the active immunization of mares 7, 17 and 9 by experimental inoculation. It will now be seen that mare No. 17, in 1906, and mare No. 9, in 1906 and 1907, were further exposed to a natural reinfection by being covered by a dourined stallion. But neither in these mares nor in the six others covered by a dourined stallion, was there a typical local action; indeed, the changes that occurred were very slight and of doubtful origin and the results of that series of experiments indicate, I think, that the mares enjoyed a strong local immunity.

It is interesting to note that the 1906-07 foal of mare No. 24 was sired by a dourined stud and that the foal, now a two-year-old, is strong and healthy. Mare No. 13, bred to a dourined stallion in 1906, was barren; to a healthy stallion in 1907, and again in 1908, has twice brought forth young and maintains recovery. The case of No. 2, bred for two consecutive years to dourined stallions and, in the third year, to a healthy stallion with the result of foaling, is a still stronger indication of a naturally acquired immunity.

The breeding of the recovered mares to a healthy stallion demonstrates their capability of bearing offspring in a very fair percentage of cases. All mares in this class maintained their excellent condition throughout the experiments, save two, which, in the third year, failed, exhibiting emaciation and diarrhœa, the issue proving fatal in the one case and now apparently leading towards a similar ending in the other. The healthy stallion, locally disinfected after each service, has escaped infection during the three years' experiments.

It would be interesting to ascertain whether these mares, apparently recovered or immune, are actually so, or are still carriers of the trypanosome and capable of infecting, through coition, a healthy stallion.

The dourined stallions used in above experiments died of the disease.

CONCLUDING REMARKS.

As a result of almost innumerable examinations of the fluids for the detection of trypanosomata in the genital organs, carried on for the greater part of three years in both naturally and experimentally infected equines, I can safely conclude that it is in the early stages of infection that the parasite are most active and numerous in the genital organs, and that as the disease advances or as an animal becomes tolerant or indifferent to it, the parasites disappear from these regions and very rarely return to it, perhaps in many cases, never.

Furthermore, when the parasite is transmitted, experimentally, from horse to horse during the early paroxysms of an infection, with each successive passage the incubation interval may be shortened and the virulence of the infection increased, but when transmitted during a late stage or during a marked period of tolerance, the incubation interval is prolonged and the issue, usually, an easily tolerated infection.

The possible duration of a trypanosome infection in man and animals without the betrayal of any definite sign of its presence is, without doubt, an exceedingly long one. It is not improbable, however, that in this country, at least, among equines there are being naturally propagated weak and attenuated strains of dourine as well as virulent ones, and that, through the former, which likely escape detection, the natural acquirement of immunity is being slowly brought about, and a native resistant race of horses established, but which is in part offset by the constant importation of fresh and susceptible breeding stock.

Our knowledge of the parasite of dourine, of immunity and recovery is still very incomplete and until more facts can be referred to and criterions of cure or recovery made known, it will be safest, to the horse breeding industry in general, to consider an animal that survives infection as a possible carrier of it.

In the meantime, and in the light of our present knowledge of the dourine of Canada and its mildness in comparison with tropical varieties, it is a disease that lends itself favourably to further research and experiment with a view to successful treatment and prevention.

APPENDIX No. 11.

OTTAWA, May 1, 1909.

SIR,—I have the honour to transmit the accompanying bulletin on Rabies by Dr. George Hilton, Chief Veterinary Inspector, and to recommend that it be printed for distribution.

Although occasional cases of rabies have from time to time been reported, it is only within very recent years that any actual authentic outbreaks have occurred in Canada.

Rumours of its existence in that portion of the province of Saskatchewan lying along the International boundary obtained currency in 1905 and 1906, but in every instance investigation failed to discover any good ground for these reports.

In the last two years, however, a number of outbreaks have been dealt with in Ontario and the disease has also been detected in Manitoba, Saskatchewan and Alberta. I am glad to say that the prompt and thorough manner in which the regulations of this Branch have been enforced has, in every instance, prevented the spread of the disease, and that, so far as can be ascertained, no loss of human life has resulted and very few animals, other than dogs, have become infected.

The knowledge of the general public as to the true nature of rabies and its manifestations is so defective and so much clouded by tradition and nervous dread, that any dog acting in a peculiar manner is very apt to become an object of suspicion and to be hunted down and killed as mad. Under ordinary circumstances, the death of the animal in this way destroys all possibility of confirming the facts as to the existence or non-existence of the disease.

This lack of definite evidence constitutes one of the greatest difficulties encountered in dealing officially with reported outbreaks, and it is with the view of enlightening the public as to what rabies really is and how to deal with suspected animals, that this bulletin has been prepared for general circulation.

It is to be hoped that its distribution in Canada will assist in dispelling from the minds of some exceedingly well-disposed and humane persons the hallucination that there is no such disease as rabies and that the officers of this Department are guilty of heartless cruelty in ordering the destruction of affected animals and the tying up or muzzling of dogs which have or may have been exposed to infection.

This mistaken view, most laudable, and properly so, from the standpoint of those who hold it, undoubtedly owes its origin to the fact already stated that, as a result of ignorance, many dogs are cruelly treated and destroyed as mad, when suffering from other ailments or perhaps only from exhaustion or excitement.

Any nervous dog, in a strange place or under abnormal conditions, when worried or hounded as such animals too often are, is liable to act in such a manner as to cause great alarm to persons uninformed as to the true nature and symptoms of rabies.

People who like and understand dogs naturally resent the way in which these unfortunate animals are treated and, going to the other extreme, believe and would have us also believe, that there is no such thing as rabies and that it is quite unnecessary, if not foolish, to take any precautions against it.

Science and fact, however, prove the contrary, and, if an illustration is needed, it is only necessary to point to Great Britain, where, by the adoption, in the first place, of general muzzling orders and subsequently by the enforcement of a rigid

quarantine, the disease formerly very prevalent, and causing annually the deaths of numbers of bitten persons, has been eradicated and is now quite unknown.

With the disease existing as it does to an alarming extent in the United States, to which country nearly all our outbreaks can be directly traced, and with a land boundary of three thousand miles, it is not possible for Canada to effectually adopt the policy which has been found so successful in the motherland.

The fact that all the outbreaks in Ontario have occurred in the Niagara peninsula and the adjacent counties, would indicate that the infection, so far as this province is concerned, has been introduced from the State of New York, while in the west, it must have been brought in by the dogs of some of our new American settlers.

Two points I would especially like to impress upon the people of Canada:

The first is that a suspected dog should not be killed if it is at all possible to avoid it, but should be driven into a loose box or similar inclosure and detained, pending the arrival of the veterinary inspector of this Department who will be promptly sent to investigate as soon as notification is received.

The second point is that there are kept in Canada, as in many other countries, far too many useless mongrels, which are not only a constant and ready means of conveying the infection of rabies, as well as many other diseases both to man and animals, but constitute besides, a standing and very real menace to one of our most lucrative agricultural industries, namely the breeding and raising of sheep.

There is little to be said against the well bred dog or even the dog of plebeian origin, provided he is properly broken, handled and kept under control, but the practice of allowing dogs to run at large indiscriminately and unattended, especially at night, cannot be too strongly condemned.

Those tender hearted persons who have so much sympathy for dogs might, with advantage, bestow some consideration on the people and the other animals bitten by dogs, rabid or simply vicious, and on the cruelly worried sheep and lambs of the long suffering farmer.

The painless destruction by the lethal chamber or by chloroform, of sixty per cent of our canine population, would, in my opinion, be a most humane measure and one of the greatest possible benefit to the country, its people and its dogs.

I have the honour to be, sir,
Your obedient servant,

J. G. RUTERHFORD,
Veterinary Director General and Live Stock Commissioner.

To the Honourable,
The Minister of Agriculture,
Ottawa, Ont.

RABIES.

By George Hilton, V.S., Chief Veterinary Inspector.

Rabies has been recognized throughout the world for many centuries, and was described before the advent of the Christian era, but there is probably no other contagious disease in animals which has, from ancient times, caused a greater diversity of opinion among authorities, and produced such erroneous ideas in the minds of the general public. There were those who firmly believed rabies was the result of exposure to intense heat, others thought it was caused by extreme thirst, many maintained that undue excitement, and the ingestion of foods rich in nutritive matters would produce it, while by others, climatic changes and certain seasons were held responsible.

Although the contagious nature of rabies has long been acknowledged and its transmission from animal to animal by means of a bite recognized, the possibility of its spontaneous development was nevertheless until very lately generally admitted. It is only during recent years that authorities have agreed that the causative agent of rabies is, without doubt, a specific micro-organism, which must first be introduced into the system of an individual before it is possible for the disease to develop.

While the actual casual agent has not so far been identified, and all attempts to cultivate it on artificial media have been unsuccessful, experiments have conclusively proved that such an organism does exist, but is of such minute proportions, that the most modern microscopic lenses are unable to detect its presence. This has been demonstrated positively by suspending, in liquids, virulent brain matter taken from a rabid animal, and passing it through a porcelain filter, the extremely minute pores of which do not suffice to arrest this micro-organism, as proven by the fact that the liquid after passing through the filters retains its virulence and produces rabies in healthy animals, when inoculated with it.

MODE OF INFECTION.

The saliva of a rabid animal is its most frequent, and so far as at present known, only means of spreading contagion, this being frequently infective one or two days before the advent of any symptoms of disease. The brain and spinal cord, however, contain the most virulent material after death, these tissues, preferably the former, being, when possible, invariably used in confirming diagnosis where suspicion exists. It is claimed by some that other body fluids contain virulent material, and cases of the transmission of rabies from mother to offspring through the medium of the milk have occasionally been reported, but of this there is no satisfactory proof. In no case, however, has the blood of a rabid animal proved to be of a virulent nature.

Pasteur, who devoted the greater part of his life to investigating this disease, is responsible, directly and indirectly, for the great advance in our knowledge regarding it. In the early eighties he discovered that he could produce rabies in a healthy animal by inoculating it with material taken from the brain or spinal cord of one which had died from that disease, and later, after extending his experiments, found that the vitality of the virus could be reduced by passing it through different animals to such an extent as to produce mild symptoms, followed by recovery, and further that animals so treated acquired immunity to such a degree that the injection of virulent material into their systems produced no bad results. This discovery rapidly found favour in scientific circles throughout the world, and energetic measures were

adopted for its perfection, so that at the present time Pasteur Institutes are maintained for the treatment of man in all large centres of civilization, where rabies is known to exist. These institutions have reduced the mortality in human beings bitten by rabid animals to such a remarkable degree that the effectiveness of the Pasteur treatment is now universally acknowledged. Rabies is therefore unquestionably a disease of inoculation, and is, in the large majority of cases, transmitted by means of a bite from a rabid animal, the virulent saliva thereby gaining entrance to the wound. The possibility of producing it by means of the ingestion of saliva, milk or meat of infected animals has for some time been a matter of experiment, but sufficient definite satisfactory data have not so far been obtained to determine whether such products may or may not be consumed with impunity.

SPECIES AFFECTED.

The habits of the dog and his species, the unrestricted freedom which the majority of them enjoy and the fact that biting constitutes their natural mode of defence, make them pre-eminently fitted for the transmission of this disease and responsible for the rapidity with which large outbreaks cover unlimited areas. Rabies is, therefore, naturally, far more frequently seen in canines, and to their species outbreaks in other animals are generally attributable.

Unfortunately, however, man and all warm-blooded animals are susceptible; the horse, ox, sheep, hog, cat, rat and fowl, together with other members of their respective species, domesticated or otherwise, readily develop this disease when bitten by a rabid animal. It is, therefore, not by any means uncommon to find several species affected during the existence of an outbreak in any vicinity.

NATURAL IMMUNITY.

There are very few cases on record of recovery once the symptoms have developed and these have been reported only by Pasteur and other investigators as occurring in animals experimentally inoculated. The possibility, however, of certain individuals possessing a natural immunity against this disease, as is strikingly apparent in other fatal contagious maladies, must be considered, and such immunity doubtless exists, but probably to a very limited extent.

PERIOD OF INCUBATION.

As soon as the virus is introduced into the system, unless prompt, energetic and effective measures are adopted to arrest it, or the individual possessions an acquired or natural immunity, the incubative period commences. This may be of short or long duration, much depending upon the vitality and the quantity of virus introduced, the resisting power of the individual organisms, the location of the bite, the favourable or unfavourable facilities afforded for the inward progress of the virus, and the suitability of the surrounding tissues. While the course followed by the virus has not so far been satisfactorily demonstrated, the symptoms exhibited in fatal cases and their examination after death, show clearly that it invariably reaches the large nerve centres.

Numerous cases on record appear to indicate that the nearer the bite is to the brain or spinal cord, the shorter the incubative period, and that when it is in the extremities that period is considerably lengthened. Although the period in question may vary largely, owing to one or other of the causes already mentioned, authorities have through the accumulation of reliable data arrived at the average period in the various species as follows:—

40 days in man.
28 to 56 days in horses.
21 to 40 days in dogs.
14 to 28 days in cats.
14 to 21 days in pigs.
21 to 40 days in cattle, goats and sheep.
14 to 20 days in birds.

SYMPTOMS.

The comparative virulence of the organism itself, the quantity introduced and the degree of suitability of the tissues directly inoculated are undoubtedly responsible for the variation of the symptoms observed. These are chiefly of a nervous order, mental excitement or depression being the prominent manifestations. They are generally speaking similar in the different species of animals, and become apparent so soon as the virus and its toxines have developed sufficiently to interfere with the normal functions of the nervous system. The symptoms are sufficiently characteristic to impress their peculiarities upon the mind of the observer and are more easily recognized than described. In all species, however, a marked change in the demeanour of the animal is first noticed by the careful observer. This may be increased excitability, restlessness, viciousness, or dullness. As the disease progresses the symptoms differ in accordance with the location, the distribution of the virus and the rapidity with which the normal structures become affected, and consequently vary from a violent uncontrollable state to one of marked dullness, followed rapidly by partial or complete paralysis and death. The former has been termed Furious Rabies, and the latter Dumb Rabies. Once, however, symptoms become apparent, the duration of the illness is fortunately very limited, death invariably resulting in from two to ten days; in dogs most frequently on the third or fourth day.

FURIOUS FORM.

In the furious form in the canine species, individuals noted for their cowardice become aggressive and quarrelsome with other animals, show an inclination to leave their natural place of abode, either permanently or for short intervals. When returning they show evidences of having been in trouble and are frequently in an exhausted condition. They rapidly assume a wild, unnatural expression of countenance, the eyes are prominent, glaring and much reddened, the membrana nictitans or haw projects and is bright red in colour, and a discharge from the eyes may be detected. A peculiar movement of the muscles of the neck is noticeable, producing retching, which may be followed by vomiting, or attempts to vomit, giving the observer the impression that a foreign body is obstructing the throat. The location of the bite is frequently very irritable and appears to annoy the dog continually. He at times tears open the wound and bites it viciously. He becomes very excitable, and may tear his bedding to pieces, snap suddenly and viciously at the least noise, or jump furiously at any object within reach. The flow of saliva now becomes profuse, and soon adheres around the muzzle in a frothy mass, due to the constant barking and snapping of the jaws. The bark becomes unnatural, changing to a shrill puppy yelp.

A short period of quietness may at times intervene, the animal endeavouring to seclude itself; this, however, is generally very brief, furious paroxysms of rage rapidly returning. The patient shows evidence of great thirst, and will lap water frequently when available, although he may, or may not, be able to swallow. Breathing becomes rapid, followed by panting, the mouth remaining open, and extreme depression is exhibited. Sudden noises, or approaching objects produce immediate

signs of rage, which may also be witnessed when no cause is apparent. He soon is unable to control his movements and paralysis, generally of the hind extremities, supervenes; he, however, persists in spasmodic yelps and feeble attempts to snap at objects, although he is unable to make much noise, due to increasing depression and paralysis. This is rapidly followed by a state of coma; he lies prostrate, unable to move, mouth open, lower jaw dropped, bathed in saliva, extremely emaciated, breathing spasmodically, death speedily taking place. In cases where he shows an inclination to roam he may run continuously across country until he becomes exhausted. His gait is erratic, he trots aimlessly along, unalert and regardless as a rule of his surroundings, with head and tail dropped, tongue hanging from the corner of his mouth, and saliva escaping and frothing around his muzzle. He will seldom attack motionless objects, anything in his path, however, appears to excite him to fury and he will viciously attack animals unfortunate enough to be in his reach.

DUMB RABIES.

The dumb form of rabies is frequently witnessed in the last stages of the furious form, but does occur independently from the first advent of symptoms. In such cases the animal always seeks cover and remains hidden as much as possible. He exhibits a tendency to vomit, retches with muzzle poked out, becomes very much depressed; paralysis setting in rapidly, the lower jaw drops, he is unable to swallow, saliva flows abundantly and the breathing is laboured and accompanied by a slight snoring sound. There are no paroxysms of rage; the facial expression is similar to that witnessed in the furious form, rapid emaciation sets in, followed by complete paralysis and coma, resulting in death.

The symptoms enumerated necessarily vary in degree in different individuals, and are sometimes sufficiently acute to cause death in a paroxysm of rage without the advent of a comatose condition.

It is well, however, to look with suspicion upon a dog whose demeanour suddenly changes. If he becomes restless, wanders away, refuses food, continually retches, attempts to vomit, snaps at objects, and rapidly loses flesh, especially if a strange dog has previously been observed on the premises, or if rabies has been suspected in the vicinity, he should be promptly detained, safely secured where no other animal can come in contact with him, and closely watched. If rabies is the cause of the symptoms noted, death will quickly ensue.

CAT.

Cases of rabies are less numerous in cats than in the other domestic animals. This is no doubt due to the dexterity with which they are able to escape from their pursuers, the conditions under which they live, their strong antipathy for dogs, and the fact that they seldom when caught by him escape alive. When, however, infection does take place the disease progresses very rapidly, terminating fatally about the third day from the commencement of symptoms. These are frequently not seen, as the infected animal often hides away, and is not found until either death is approaching, or has taken place. In other cases, the animal is extremely restless and excitable, moves about persistently in an erratic manner, and seldom remains at ease, The eyes assume an unusual brilliancy, the pupils are dilated, resulting in a wild frightened expression. Great thirst is apparent, but there is no desire for food. He shows a tendency, however, to pick up and swallow stones, sticks, and other foreign bodies. The voice rapidly changes to a loud harsh tone. He may run from one secluded spot to another constantly, mewing in a loud, harsh, unnatural, screechy manner. Saliva flows profusely, which with the persistent licking, frequently ap-

parent, soon moistens the coat of the animal, and adds to its dejected appearance. Any noise or excitement may be followed by paroxysms; these may occur frequently or occasionally, during which the animal jumps about furiously, and will attack a dog, or other animal or man, biting and scratching savagely. Emaciation is rapid and complete, paralysis soon takes place, followed quickly by death.

WILD ANIMALS.

Foxes, wolves, coyotes being in many respects closely allied to the dog, exhibit similar symptoms when rabid. They become bold and venture into public roads, pastures and barnyards, often attacking domestic animals, and are therefore occasionally the cause of outbreaks in areas previously uninfected.

CATTLE.

Cattle affected with rabies may exhibit a wild, staring look, the eyes being particularly bright, or on the other hand, an unusually mild expression may be noticeable. The former condition denotes an increased excitability of the nervous system, and violent symptoms frequently follow. If secured in the stall, the animal will suddenly bellow in a terror-stricken manner, pull forward and backward strenuously in its fastenings, stamp its feet determinedly, shake its head violently and butt viciously at any object. A period of calmness may intervene, the animal standing quietly with head slightly elevated; spasmodic twitching of the muscles of the neck may now be noticeable, accompanied by frequent blinking of the eyelids. It may even at such times show signs of restlessness and may kick occasionally at its abdomen, probably from abdominal pain.

A strong desire to lick objects in reach is apparent, the patient doing so persistently. The flow of saliva is profuse and the animal shows no desire for food. A sudden fit of rage may follow, perhaps induced by an approaching object; the patient lashes its tail, bellows loudly with a hoarse, unnatural sound, shakes its head violently, butts wickedly at the manger or wall, and may bite savagely at the former, lacerating the palate and dental pad. The flow of saliva now assumes a bloody hue and adds considerably to the wild, unnatural appearance of the animal.

As the disease progresses the animal rapidly weakens and now becomes markedly emaciated, paralysis quickly follows, affecting the muscles of the throat and hindquarters. The patient soon falls, is unable to rise, and may sink into a state of coma and die rapidly, or may struggle persistently for a considerable time, until death takes place.

In cases where the animal is not under restraint, the symptoms may be of even a more violent nature; he rushes wildly about, leaps into the air, bellows loudly and butts viciously at any animal in reach until weakness or paralysis force him to desist.

While the symptoms in cattle are most frequently of a very violent nature, they are occasionally ushered in by extreme lassitude, denoted by an unusually mild expression, or one of marked dejection. Continued yawning is apparent, shifting of the feet alternately, pronounced dullness, twitching of the muscles of the neck and face, followed by great stupor. Smacking of the lips and grinding of the teeth may be noticeable and an increased flow of saliva is generally a prominent symptom. Emaciation and paralysis rapidly follow, the patient lies down or falls and death occurs usually from the fourth to sixth day after the commencement of illness.

SHEEP.

In sheep a change in demeanour is quickly noticeable, their heads are generally carried erect, the eyes assume an exceedingly bright appearance, and may roll in

their sockets, due to the involuntary twitching of their motor muscles. Excessive grinding of the teeth is a prominent symptom. When approached they frequently give vent to a peculiar wheezing sound, which terminates abruptly, due to a sudden expiration of air through the nostrils. They bleat frequently with a loud, hoarse sound. They may stamp with the forelegs, and often jump like a dog at any object out of reach. They also exhibit a great desire for licking, are exceedingly quarrelsome, and frequently run and butt viciously at any other animal. Their expression is invariably one of extreme excitement, and they have been known to bite savagely at other animals. The flow of saliva is profuse and the appetite disappears soon after the first symptoms are detected. As the disease progresses weakness and emaciation are marked symtoms, causing the animal to stagger and fall, convulsions follow and death rapidly ensues, generally taking place from the second to the fifth day after the commencement of illness. In some cases, however, paralysis may be the first symptom detected; the animal is found down and unable to rise, with the same excited facial expression, twitching of the muscles, rolling of the eyes, heavy breathing, grinding of the teeth, and a profuse flow of saliva; emaciation becomes marked, and convulsions occur at irregular intervals, rapidly terminating in death.

HOGS.

The rabid hog shows a strong tendency to hide in the most secluded spot available, and will suddenly, without apparent cause rush out and run in evident terror, grunting and squealing loudly. His expression is one denoting extreme fear, with an unusual brilliancy in the eyes. Although his normal appetite is generally in abeyance, he exhibits a tendency to chew wood and other articles, and may persist in so doing for lengthy periods. The flow of saliva is markedly increased, the patient continually champing his jaws and showing signs of extreme restlessness. He will occasionally rush at his fellows or other animals, bite savagely, and if a boar, use his tusks viciously. Paralysis of the muscles of the throat and hindquarters rapidly intervenes and emaciation and weakness become markedly apparent, followed by convulsions, terminating quickly in death, which generally takes place from the first to the sixth day. The symptoms are subject, as in other species, to varied degrees of severity, and may be ushered in by extreme depression, quickly followed by paralysis without the appearance of any violent manifestations.

HORSES.

In the horse a change of demeanour is also first noticeable. He exhibits either great excitability or depression. In the former case his expression is one of keen alertness, ears erect, eyes exceedingly bright and blood shot, exhibiting a wild glassy stare. His appetite becomes impaired and is soon altogether absent. He is extremely restless; twitching of the muscles may be noticeable, together with quick spasmodic movements of the eyes, and the membrana nictitans (haw). He may get up and down, roll, and shake his head repeatedly. The least noise is sufficient to temporarily increase the symptoms, he will kick suddenly at any object, neigh frequently, and may gnaw persistently on manger, stall or fence. There may be intense irritation at the seat of the bite, the animal licking and finally chewing it viciously. Cases have been reported where the patient has gnawed through the muscles to the bony tissues, and persisted in doing so until approaching paralysis intervened.

Violent paroxysms are common, causing the animal to kick dangerously; he will frequently rush and bite savagely at the manger, burying his teeth in the woodwork.

The symptoms become extremely aggravated, the animal smashing the stall to pieces, and even occasionally breaking his way out of the stable. Extreme thirst is evident the flow of saliva profuse; he grinds his teeth frequently and will suddenly snort loudly. Swallowing becomes difficult, resulting in the return of food through the nostrils. His movements become stiff and jerky, he exhibits marked vicious tendencies and will rush and bite other animals in a determined manner. As the disease progresses he becomes very much emaciated, convulsions frequently take place, which may terminate in death.

In other cases the symptoms are ushered in by depression and stupidity. There may be involuntary muscular twitching, irregular movements of the eyes, which assume a prominent, reddened, unnatural appearance. The animal breathes with a snuffling noise, and in a laboured, jerky manner. He frequently persists in pressing his head forward against the manger or wall, often grinding his teeth. As the disease progresses he knuckles over on the fetlocks, staggers, sways, and finally falls unable to rise, or to do so only with difficulty. Emaciation is marked, the flow of saliva is noticeably increased, he may bury his teeth in the ground, flooring or any convenient object, remaining in this position for short or prolonged intervals. Convulsions follow, which become more severe with each recurring attack, ultimately resulting in death from four to six days from the advent of the first symptoms.

POST MORTEM APPEARANCES.

The carcases of animals succumbing from this disease are extremely emaciated, and the post-mortem findings are not of a marked nature, the alterations in the tissues being often but slightly discernible even to the experienced eye. The lining of the mouth and throat frequently shows evidence of congestion, as does also that of the stomach, on the surface of which hemorrhagic spots may be fairly well distributed.

In view of the depraved appetite so often witnessed in affected animals, foreign bodies are frequently found in the stomach, such as sticks, stones, dirt, and similar articles. It is seldom, however, that this organ contains food, and when much is found present it is a fairly safe indication that rabies was not the cause of death.

While the brain, spinal cord, and their membranes contain the most virulent material, they seldom exhibit marked visible changes. Evidences of congestion, with an increase of the fluids, may be detected, but the important pathological changes even here are of microscopic proportions. Pathologists have naturally directed their attention for years to the miscroscopic study of the nerve tissues, with a view to discovering some constant, definite characteristic alteration therein, which would enable them to arrive at a positive diagnosis more promptly than is possible by animal inoculation. Van Gehuchten, Nelis and Ravenel, have shown that certain changes occur in the nerve cells of the *plexiform gangila,* while Negri more recently demonstrated the evidence of peculiar staining granules within the nerve cells of the brain taken from animals dying from this disease. The latter have been termed the 'Negri bodies,' and while generally accepted, and largely adopted by pathologists as a rapid means of diagnosis, the fact remains that the same bodies have also been detected in the brain cells of animals, which have later been proved conclusively to have died from causes other than rabies. It is, therefore, quite evident that while progress has been made, it has not been sufficient to furnish a reliable substitute for animal inoculation as a means of certain diagnosis.

BITTEN PERSONS AND ANIMALS.

In conclusion it cannot be stated too emphatically that the bite of a dog, or any other animal, will not under any circumstances transmit rabies, unless that animal is, at the time of biting, affected with the disease.

It is, therefore, most important, in cases of biting of a suspicious nature, to detain securely the animal that inflicts the bite, and no danger need be apprehended, if symptoms do not develop in the course of a few days.

If, as is too frequently done in such cases, the animal is destroyed at once, there is much doubt and delay in obtaining proof as to whether it was rabid or not. This is important, as the mere fact of having been bitten by an animal, even though there is no ground for suspicion, may in view of the erroneous imaginary theories, which have passed down from generation to generation, result seriously in an individual of nervous temperament.

For this reason there is probably no other communicable disease of the lower animals in which the exercise of extreme caution, commonsense, and good sound judgment is of such paramount importance.

When valuable animals are bitten a veterinarian should be promptly consulted, and awaiting his arrival every attempt made to encourage bleeding. It is advisable to leave further treatment of the wound to the veterinarian, unless undue delay is experienced in which case pure nitric acid is probably the preferable agent to use. This should be dropped carefully into the wound, while the latter is being thoroughly massaged, in order to ensure the penetration of the acid to its depths.

In cases, however, where the least suspicion of rabies exists, and any human being has unfortunately been bitten, no time should be lost in procuring the services of a physician, and the same precautionary measures promptly adopted.

RABIES (HYDROPHOBIA).

An animal suspected of being affected with rabies (hydrophobia) should, if possible, be captured alive, placed in a cage where it can do no harm, and carefully watched. If affected with rabies, symptoms will appear within forty-eight hours, and death will, as a rule, occur within a few days. Affected animals are scarcely ever known to recover.

In order that other causes of death may be excluded, material should be forwarded to the laboratory for confirmatory diagnosis. If the time necessary for transmission to the laboratory does not exceed twenty-four hours, the head may be severed from the body and forwarded by express packed in ice. In winter, the severed head, if frozen, may be sent any distance, provided instructions are given to keep frozen.

Where the distance from the laboratory exceeds twenty-four hours, a portion of the brain or spinal cord (the medulla or base of the brain is preferred) may be placed in pure glycerine and forwarded by mail. There should be an excess of glycerine over the bulk of material forwarded.

Full information as to history, clinical symptoms, etc., should also be furnished.

Specimens should be addressed:

Biological Laboratory,
Ottawa, Canada.

DOMINION OF CANADA.

REGULATIONS RELATING TO RABIES.

By Order in Council dated 10th August, 1905, in virtue of 'The Animal Contagious Diseases Act, 1903, R. S. C., 1906.

1. No dog or other animal which is affected with or has been exposed to the infection of rabies, shall be permitted to run at large, or to come in contact with other animals.

2. Any Veterinary Inspector may declare to be an infected place within the meaning of 'The Animal Contagious Diseases Act, 1903, R. S. C., 1906,' any place or premises where the infection of rabies is known or suspected to exist.

3. Veterinary Inspectors are hereby authorized to order the slaughter of any dog or other animal affected with rabies, or suspected of being so affected, and to order the disposition of the carcase of such animal.

4. Veterinary Inspectors are hereby authorized to order dogs or other animals which have been exposed to the infection of rabies to be detained, isolated or muzzled.

5. No dog or other animal, nor any part thereof, shall be removed out of an infected place without a license signed by an inspector.

6. Every yard, stable or outhouse, or other place or premises, and every wagon, cart, carriage, car or other vehicle, and every vessel and every utensil or other thing infected or suspected of being infected with rabies, shall be thoroughly cleansed and disinfected by and at the expense of the owner or occupier in a manner satisfactory to a Veterinary Inspector.

7. On receiving the report of an Inspector to the effect that rabies is known or suspected to exist in any locality, the Minister of Agriculture may order that all dogs, or other animals, within such an area as he may determine or describe, shall be detained, isolated or muzzled in such manner and during such period as he may see fit.

J. G. RUTHERFORD,

Veterinary Director General.

HEALTH OF ANIMALS BRANCH,
DEPARTMENT OF AGRICULTURE,
OTTAWA.

Attenton is Specially Drawn to the Following Sections of 'The Animal Contagious Diseases Act 1903,' R.S.C., 1906.

Section 3.—Every owner of animals and every breeder of or dealer in animals, and every one bringing animals into Canada shall, on perceiving the appearance of infections or contagious disease among animals owned by him or under his special care, give immediate notice to the minister and to the nearest veterinary inspector of the Department of Agriculture, of the facts discovered by him as aforesaid.

2. Any veterinary surgeon practising in Canada shall, immediately on ascertaining that an animal is labouring under an infectious or contagious disease, give similar notice to the Minister and to the nearest veterinary inspector.

Section 23.—Whenever under this Act a place has been constituted an infected place, no live animal, nor the flesh, head, hide, skin, hair, wool or offal of any animal or any part thereof, nor the carcass nor any remains of any animal, nor any dung of animals, nor any hay, straw, litter or other thing commonly used for and about animals, shall be removed out of the infected place, without a license signed by an inspector appointed as aforesaid until said place has been released by order of the Minister.

Section 37.—Every person who brings or attempts to bring into any market, fair or other place, any animal known by him to be infected with or labouring under any infectious or contagious disease, shall, for every such offence, incur a penalty not exceeding two hundred dollars.

Section 41.—Every person who refuses to admit any inspector or other officer into any place or premises or any steamship, vessel or boat, or any carriage, car, truck, horsebox or other vehicle used for the carriage of animals, or who obstructs or impedes the execution of any order or regulation made by the Governor in Council or the Minister under this Act, shall for every such offence, incur a penalty not exceeding one hundred dollars; and the inspector or other officer may apprehend the offender and take him forthwith before a justice of the peace to be dealt with according to law; but no person so apprehended shall be detained in custody, without the order of a justice, longer than twenty-four hours.

Section 46.—Every person who violates any provision of this Act, or of any regulation made by the Governor in Council or by the Minister, under the authority of this Act, in respect to which no penalty is hereinbefore provided, shall, for every such offence, incur a penalty not exceeding two hundred dollars.

APPENDIX No. 12.

THE CATTLE TRADE OF WESTERN CANADA.

By J. G. Rutherford, Veterinary Director General and Live Stock Commissioner.

Ottawa, March 31st, 1910.

Sir,—Ever since July, 1906, when you added to my other duties those pertaining to the office of Live Stock Commissioner, I have been quietly investigating the conditions surrounding the commercal live stock trade of Canada. To this subject comparatively little attention had previously been given, my predecessor having devoted more time and effort to the interests of the breeders of pure bred stock than to those of the ordinary farmer and feeder.

This was doubtless both proper and necessary, the pure bred herd or flock being the foundation head of all profitable stock keeping, and therefore of prime importance to the whole industry.

It is nevertheless a fact that in Canada, as elsewhere, the breeders of pure bred stock are more independent and less needful of government assistance than any other class in the farming community, excepting perhaps the original settlers on the western prairie, who, certain of a rich return, and reckless of the future, too often exploit the virgin soil with a fine disregard of all the principles of husbandry.

The breeder is independent of government aid for two reasons: firstly, because he is a breeder and therefore, as a rule, a man of more enterprise, and wider knowledge of business methods than the majority of his fellow tillers of the soil, and, secondly, because, being united with others equally intelligent, in one or more thoroughly organized and active breed associations, he is in a position to reach a definite decision as to what his rights and requirements are, and to apply to those in authority the pressure of persuasion to obtain them.

On the other hand, the breeder or feeder of ordinary live stock pays but little attention to the commercial aspect of his business, and being, as a rule, without organization, is at the mercy, to a large extent, of the dealer, to whom he is practically forced to sell and who is generally more than a match for him in experience and acumen, and besides, often in a position to dictate his own terms as to price and delivery.

In view of these facts, I deemed it my duty to endeavour to ascertain and present to you a summary of the facts as to the conditions under which our commercial live stock trade is being carried on, so as to enable you to take such steps as might appear to be necessary or advisable in the interests of the producers. The present report is confined almost entirely to the cattle trade of the western provinces, as of all branches of the business, this appears to me to be subject to the most numerous and serious disabilities and disadvantages.

You will recollect that in 1902, at your special request, I prepared a brief statement regarding this trade, dealing specially with transportation, which was published in your annual report for that year. Since that time conditions have been somewhat bettered, but there is yet much room for improvement, particularly in the matters of transportation and marketing.

During the seasons of 1907 and 1908 special officers were employed to investigate all phases of the western cattle industry, beginning with the animal on the ranche and ending with his marketing either on this continent or in Europe.

The reports of these officers, which deal very fully with the details of the trade and especially with its transportation features, contain much valuable information, and will, I trust, be of great value in enabling the Department to undertake intelligently, either by special legislation or otherwise, the improvement of existing conditions.

As is well known the Canadian west is now experiencing the same change in cattle raising methods as has already taken place in much of the country south of the line, formerly devoted to ranching purposes.

The incoming of settlers, many of them from the dry belt, has transformed large areas of land, formerly considered only fit for ranching, into fertile farms growing great crops of grain and fodder. While there is yet much territory untouched by the settler and on which the cattle still range as formerly, its area is being yearly curtailed, and, as a natural consequence, the free, easy and somewhat wasteful methods of the rancher are gradually giving place to those of the farmer and feeder. That this change will, instead of lessening the output, eventually result in a large increase in the cattle production of the transformed districts, needs no demonstration. Under ranching conditions, twenty acres is the usual allowance for each head of cattle, while the losses from exposure, from lack of food and from wild animals constitute a heavy drain on the herd.

The farming settler raises an abundance of food of all kinds which he cannot use to better advantage than in fattening cattle. With the aid of his fences and with cheap buildings, or even with none, he can keep his cattle under constant observation and control, with the result that loss is reduced to a minimum. At the same time the cattle, being at least partly domesticated, and generally to some extent grain fed, handle and ship infinitely better than do the grass finished range steers which often, on the long journey from their native prairie to Liverpool or London, shrink the profit from their bones, and go to the butcher in such a condition as to fairly justify the Scottish feeder in his persistent opinion that Canadian cattle can only be fattened in his sheds and courts.

Again, the winter feeding of steers will abolish the heavy handicap which the rancher, pure and simple, has always had to carry in being compelled to market the cattle off the grass and before the advent of winter. Under the new order of things, demand will, to a much greater extent, regulate supply, and the element of compulsion being removed, prices will be more even, while much of the present difficulty in transportation, due to the seaward rush of cattle and other produce in the fall, will also disappear.

The close farmers are, as yet, however, in the minority in the less thickly settled portions of Alberta and Saskatchewan. There is still much open grazing land available and many settlers let their cattle run at large during the summer, thus, for the present as it were, combining ranching with farming. As time goes on and the land becomes more generally taken up, this condition will disappear, as it has already done in many districts in Manitoba, as well as in the newer west, and the farmer will have to depend for his feed on the output of his own acres.

HISTORY OF THE CANADIAN RANGE.

The ranching industry in Canada is rapidly passing. In Saskatchewan and Alberta, the handwriting is already on the wall, and in these provinces it is only a matter of time until even the districts still regarded as unfit for general agriculture will, through modern methods of dry farming or by means of irrigation, be brought under cultivation. In the Peace River country ranching may persist for a time, but there, as elsewhere on this continent, the settler will soon be its undoing and the cow-

boy will disappear. This being the case, a brief history of the industry during the thirty years since its inception, may be found interesting.

In 1879, after the disappearance of the buffalo, which had up till that time, furnished the Indians of the plains with their principal sustenance, the Canadian Government brought in from Montana a thousand head of breeding cattle for the purpose of creating a future source of meat supply for these aboriginal wards of the nation.

This herd, the introduction of which was largely in the nature of an experiment, was placed in the foothill country west and southwest of Fort Macleod, and though badly handled and depleted by cattle thieves and wild animals, soon proved beyond a doubt, that the profitable raising of cattle in the Canadian west was a feasible proposition.

The establishment of a number of extensive ranches quickly followed. Arrangements were made for the leasing at low rates of large areas of government land. Capitalists became interested, and money from Europe, from eastern Canada, and from the United States flowed into the country. From lack of experience of climatic and other local conditions, some of this money was lost, but with the advent of the railway in 1883, conditions improved and a large and profitable industry was speedily built up.

In the beginning, fences were unknown, the cattle being controlled by herders, but about 1885 the proprietary instinct began to assert itself and many of the larger holdings were put under fences, although, needless to say, the smaller owners continued to prefer the open range system.

The big concerns used almost exclusively pure bred bulls of the beef breeds, and, as the grazing was good and not over-stocked, usually held their steers until at least four years old, the result being that a most excellent type of beef animal, full grown, and well finished, began to find its way from Alberta to the eastern market. Being mature and well furnished with fat in the fall, driven slowly, feeding and hardening on the way through a rich grazing country to the railway, distant often many days' journey from the home ranch, these cattle stood the trials of the export journey fairly well, and landed in Britain, somewhat shrunken it is true, but still yielding a reasonable profit on the comparatively small cost of production. In the early days of the industry, only the best were exported. The lighter and rougher stock went for local consumption and to fill railway construction and Indian contracts.

DETERIORATION.

As time went on the country became more heavily stocked, many men without adequate capital or experience began to keep cattle, cross-bred bulls became commoner on the range, carelessness in breeding methods lowered the natural increase, the purchase of stockers first from Manitoba and later from the eastern provinces introduced many very inferior animals, and a general deterioration both in quality and value became only too evident.

The climax of this deterioration was reached about the year 1902 when, tempted by the low prices of Mexican cattle, some of the larger ranchers began to make importations from Chihuahua and Coahuila. These degenerate descendants of the ancient Spanish breed, although hardy and exceeding in length of horn, as in length of wind and in speed, anything ever before seen among our western cattle, did not recommend themselves to the intelligence of the Canadian rancher, and, after a few years of trial, the trade practically died out in 1905.

SALES OF PURE BRED MALES.

About the same time the effects of the policy of this Department in establishing annual provincial auction sales of pure bred bulls began to make themselves apparent.

These sales, although to some extent hampered by the jealousies of local breeders, as well as by the indifference of many of the less intelligent and less progressive

ranchers, have done an excellent work in raising the standard of our western cattle, as regards size and conformation.

There is still much room for improvement in this direction, and it is to be hoped that as diversified husbandry takes the place of ranching, the necessity for using a better class of bulls than those hitherto employed will be more generally recognized and appreciated.

EFFECTS OF SETTLEMENT.

The advent of the Mormons and others familiar with dry farming and the experience of a few of the more progressive ranchers themselves, especially in the Pincher Creek district, having demonstrated the suitability of much of the country for general farming, a strong tide of immigration set in about the year 1900, and since that time, many of the old ranches have been divided, cultivated and built upon, and now form populous rural areas, rapidly beginning to resemble in appearance similar districts in the older settled provinces.

At the present date, while many of the larger ranches have closed out, the cattle industry is by no means at an end. It is true that many cattlemen, seeing the inevitable end of ranching, have been rapidly 'beefing' out their herds by selling cows, spaying heifers and disposing of bulls, but this is only a link in the chain connecting the old with the new and better condition of the industry. The determination to beef out has temporarily increased the output of cattle of range quality, but, while this is going on, the incoming settlers are stocking up, not to return to the old system of selling their cattle off the grass in the fall, but to follow the more profitable method of finishing beef throughout the year for the good markets, as is done in other progressive countries, where beef raising is recognized as a legitimate and useful adjunct to mixed farming.

The condition of the range industry was described in striking terms by a representative western cattleman, at the National Live Stock Convention, in February, 1908, who said:—'No one at all familiar with the ranching industry will hesitate to state that it is in a condition of rapid decline, dying as decently and as quickly as it is financially able to do.' It is not yet dead, however; there were still in force in the four western provinces, on April 1, 1908, 939 grazing leases, involving 3,259,271 acres divided as follows:—Manitoba, 12,642 acres; Saskatchewan, 632,493 acres; Alberta, 2,132,718 acres; British Columbia, 281,418 acres. The average area under lease is 3,481 acres. It would therefore appear that there are still a good many cattle kept under the old conditions, even when the sheep and horse leases are taken into consideration.

WINTER LOSSES.

From its very inception the ranching industry was subject to winter losses, more or less severe according to the nature of the weather, as well as that of the rancher himself. Even in the worst winters those herds whose owners had made reasonable provision for bad weather conditions escaped, as a rule, with comparatively little loss, although they also occasionally suffered heavily through suddden storms, which coming early in the season, drifted the cattle so far away from the stores of fodder prepared for them that it was impossible to get them back before the advent of spring, or until a timely chinook enabled the cowmen to collect from far and near the remnants of the herd.

The winter of 1886-7 was almost fatal to the industry, being unequalled in severity by any season, either before or after, until the memorable year of 1906-7 when approximately fifty per cent of the cattle on the range were lost.

In the year first mentioned, however, there was much more grass and many fewer cattle, while on the ranges then occupied there was considerable natural shelter, so that, although badly hit and sorely discouraged, the ranchers did not abandon the field, but investing new capital and energy, soon regained the ground they had lost.

As stated above, the rancher who makes adequate provision for a bad winter, may through unforeseen circumstances, lose heavily in spite of his foresight; on the other hand the careless and improvident owner, who trusts to luck and stores no hay for winter use, is certain to be seriously hit, should the season prove exceptionally rigorous.

Apart from the mere question of money, the practice followed by too many owners of facing the possibilities of the winter without laying in at least enough fodder to sustain life, is cruel and reprehensible to a degree, and should, I think, be made the subject of drastic legislation.

It would be possible to go much more deeply into the question and, in fact, to practically show by a consideration of its various demerits, that while in its own time and place it served a useful purpose, the ranching industry has properly had its day, and that its early disappearance from southern Alberta and Saskatchewan need, except perhaps from the standpoint of sentiment, cause no deep or lasting regret.

THE TRADE AS NOW CONDUCTED.

The export trade in western range cattle, as hitherto carried on, has been sinfully wasteful, unbusinesslike and unprofitable to the producer. Cattle wild, excitable and soft off grass, are driven to the railway, held sometimes for days on poor pasture waiting for cars, and finally, after more or less unavoidably rough handling, are forced on board. Once in the cars, they are, not unfrequently, run through to Winnipeg without being unloaded for feed or water. It is 840 miles from Calgary to Winnipeg, and as many shipments originate beyond the first-named point, it may be readily seen what this means, even when the run is a good one. Some shippers unload at Moosejaw, 440 miles west of Winnipeg, but others claim that it is alike more humane and more profitable to run through, as the cattle, being still wild, excited and unaccustomed to handling, not only refuse both feed and water, but suffer much more in the unloading and reloading than they do when left in the cars. On arrival at Winnipeg they are always unloaded, fed and watered, being, by this time hungry, thirsty, and fairly quiet from exhaustion. After being rested they are inspected, culled and reloaded, the next step being, as a rule, at White River, 678 miles further east. There they are again fed and watered and after another stage of 755 miles, arrive at Montreal. Here for most of them the land journey ends, although when navigation is closed at that point, it extends to Portland, Boston or St. John, New Brunswick, as the case may be; very rarely to Halifax. At Montreal, however, all are unloaded, fed, watered, rested, and carefully inspected by the veterinary officers of this Department, whether they are to be shipped by water from there or from some other port. If the latter, they are on arrival, rested and again inspected before going on board the steamer.

While the facilities for loading cattle on the ship at St. John are excellent, those at Montreal are not of the best, and this necessitates more and somewhat rougher handling than would otherwise be the case. Even on the ships there is much room for improvement in conditions. The regulations as regards space, fittings and similar matters, are, oddly enough, drawn up and enforced by the Department of Marine and Fisheries, and although these might, in my opinion, be revised with advantage, this is scarcely the proper place to discuss them.

One matter, however, I must mention, namely the class of men employed to look after and care for the cattle on our Canadian ships. These are, as a rule, picked up indiscriminately, through agents at the port of shipment. These men, known in the

trade as 'stiffs,' are often returning emigrants, who have failed, through drink or other causes, in making things go in Canada, or sometimes simply men looking for a cheap passage, decent enough perhaps, but with no knowledge of cattle, and in many cases quite unaccustomed to the sea. Such men are frequently incapacitated for duty through seasickness, and, in other cases, simply refuse to work, with the result that any who may be capable and industrious are overwrought and the cattle suffer accordingly. In rough weather especially, the feeding and watering are apt to be irregular and insufficient.

Is it a matter for wonder that after a journey of 5,000 miles, made under such conditions, our grass-fed range steers arrive in British lairages gaunt and shrunken, looking more like stockers than beeves, that our Scottish friends think we have no feed, or that I should declare a business so conducted as sinfully wasteful?

And still it is profitable; profitable to the middleman who, coolly reckoning on the shrinkage, fixes accordingly his price to the producer; profitable to the commission man who pockets in commission what the middleman takes in profits; profitable to the railway companies; profitable to the steamship lines and profitable to the British butcher who pays only for what he gets and not even that much if, by combination or sharp practice of other kinds, he can manage to keep prices down. To the producer, however, and therefore to the country, it is the very reverse, and the odd feature of it all is that if conditions were so amended as to make it profitable for them, the others mentioned above would gain, rather than lose, by the change.

AS IT SHOULD BE.

No wild, grass-finished cattle should be shipped for export. In a country like western Canada which, one year with another, is full of all kinds of material for winter-feeding, there is no excuse for the sending forward, for immediate export, animals which, owing to their lack of domestication and the nature of their food, cannot, under ordinary circumstances reach their destination on the British market without a woeful depreciation in both quantity and quality of flesh.

Our friends in the United States long ago realized the folly of shipping to Europe alive, steers direct from the range. Their range cattle are brought to the middle west, dehorned, if this has not been earlier done, fed for at least sixty days on a ration comprising a liberal allowance of grain, then sent to the market, generally in Chicago, and carefully inspected and culled. Those deemed fit for export are then taken to the seaboard by fast trains and in cars specially fitted for feeding and watering en route. They are loaded on these cars under careful supervision, no overcrowding or rough handling being permitted. The men in charge are almost invariably regular salaried employees of the shipping firms, and the same is true of the foremen on the ships and of those working under them.

As a result of these superior methods, United States cattle, even when originally from the western ranges, arrive in Britain in much better condition than Canadian range cattle, and of course command correspondingly higher prices.

Domesticated Canadians, properly finished, land, as a rule, in excellent condition, and compete closely in price with the best States cattle of the same class. There is no reason why our Canadian range cattle, if treated on similar lines, should not compete as closely with steers from the Western States.

Finishing Range Cattle.

As a matter of fact, considerable improvement is already taking place in the finishing of western cattle, as year by year more winter feeding is undertaken. Many thousands of good steers are, in the autumn, put on a hay or grain ration for the winter. When the feeding is liberal and judicious and good water available, the grass flesh is not only held, but gains on hay alone, of from 80 to 125 pounds, and from hay

and grain up to 400 pounds, are not uncommon. The cattle thus wintered are ready for the spring market, on which they usually sell well, prices always being better at that season, the demand good, and, as but few cattle are being handled, shipping facilities much better. Winter feeding is now systematically carried on by some of the largest operators in the west.

Arrangements are yearly made by one firm with individual farmers throughout the country to feed during the winter at a fixed price per head per month. The cattle are handed over to these men on the approach of hard weather and taken from them when wanted. While many are slaughtered for home and coast consumption, a large number may now be seen during May and June at the Winnipeg yards on their way to the British market, where, needless to say, they get a much more favourable reception than do those which come direct from the range.

A carefully prepared estimate of the number of cattle on feed in central Alberta during the winter of 1908-9, gives 6,000 head being fed in small lots by individual farmers, and 2,000 head by large concerns. It is believed that 75 per cent of these were receiving a grain ration, and 25 per cent hay alone. In the southern part of the province, additional large numbers, of which reliable statistics are not available, were also fattened.

The growth of the practice of finishing cattle on dry feed (hay or hay and grain) in the three western provinces, is indicated by statistics of shipments received at Winnipeg from January to June (fed on dry feed), as compared with the shipments from July to December (grass fed) for the years 1906, 1907 and 1908, as follows:—

Number of cattle shipped east from Winnipeg, January to June, 1906. . . .	9,435
Number of cattle shippped east from Winnipeg, July to December, 1906. .	81,609
Number of cattle received for local use, January to June, 1906.	9,135
Number of cattle received for local use, July to December, 1906.	31,462
	131,641
Number of cattle shipped east from Winnipeg, January to June, 1907. . . .	1,487
Number of cattle shipped east from Winnipeg, July to December, 1907. . . .	50,062
Number of cattle received for local use, January to June, 1907.	16,397
Number of cattle received for local use. July to December, 1907.	32,254
	100,200
Number of cattle shipped east from Winnipeg, January to June, 1908. . . .	19,531
Number of cattle shipped east from Winnipeg, July to December, 1908. . . .	86,593
Number of cattle received for local use, January to June, 1908.	22,342
Number of cattle received for local use, July to December, 1908.	41,622
	170,088

The above tables show the percentage of dry fed cattle arriving at Winnipeg for the past three years to have been as follows:—

1906.	16·37 per cent.
1907.	21·62 "
1908.	48·67 "

The shipments via Winnipeg in no sense include all the cattle produced in the three prairie provinces. To these must be added the large quantity of beef consumed in the local markets, in addition to that shipped to British Columbia and the Yukon. It appears safe to infer that the percentage of winter fed catttle that have gone to

Winnipeg, as shown by the above tables, indicates fairly accurately the relative proportion of these to grass-fattened stock produced in the three provinces. These tables further indicate that within a few years comparatively few lean, or rather half-fed cattle will be shippped from western Canada for immediate killing.

This is an excellent showing, as far as it goes, but I am satisfied that, one year with another, a profitable business can be done by farmers in the grain growing districts of the three western provinces, in finishing for the market, the big growthy grass-fed steers from the range country. In seasons when rough grains are scarce or dear, it would not, of course, be so profitable as when these were cheap and plentiful. There is almost always roughage in abundance. In many districts good prairie hay is procurable at small cost, while straw is always available and can, as Mr. Bedford and many others have shown, be fed with profit, when intelligence and some other things are in the combination. Once in a while too there is a little frozen wheat in the country, and in years when this is the case, the best market for it is usually to be found among the live stock, if one is fortunate enough to have them.

With the object of encouraging the proper finishing of range cattle in the west, this branch has for two seasons offered to a number of selected farmers in Manitoba and Saskatchewan, who have suitable locations and would undertake the finishing of range steers in winter on their farms, a bonus of two cents per pound of gain on such cattle fed by them. It is not desired that the cattle be housed, but fed either in open sheds or naturally sheltered locations.

Sufficient evidence is at hand to demonstrate that profitable finishing can be done without the use of expensive buildings and upon such feed as is now being wasted on many wheat farms. The bonus offered was not in any case accepted, farmers, intending to feed, preferring to utilize the semi-domesticated cattle available in most districts, rather than undertake the feeding of range steers to which they were unaccustomed.

Outdoor feeding was, however, undertaken at the Experimental Farm at Brandon, where in the tests made in 1907-8, it was found that the cattle fed outside made more profitable gains than similar cattle fed under the usual stabling conditions. The experiment is being continued on a larger scale this winter. Following is Superintendent Murray's report of the 1907-8 experiment:—

Feeding Steers on Brandon Experimental Farm—Outside versus Inside.

(By James Murray, Superintendent.)

The feeding of cattle out of doors for the production of beef has been receiving considerable attention of late at the hands of Manitoba cattlemen. The strongest advocates of this method of procuring beef are men who have been successfully practising it for a number of years and those who have seen it in operation. The conditions of outdoor feeding are so radically different from those that have been generally considered essential that the majority of cattlemen are sceptical about it, while many others look upon the practice as ludicrous, and aver that it must involve a wanton waste of feed.

Last fall some work was started to secure definite information as to the comparative economy of making beef in a comfortable stable and in the open with comparatively little shelter. The first lot of steers, thirteen head, has just been marketed and the results are available.

Thirteen were purchased in late November and divided into two groups as nearly alike as possible in size and quality, eight being dehorned and put outside and five (as many as we had accommodation for) tied in the stable. The steers were domestic, purchased in the neighbourhood of Oak River and cost 3½ cents shrunk. The

inside group were started on September 3 on a standard ration that has given good results here for a number of years for beef production and consisted of silage, straw, hay, a few roots and grain. The grain ration at the start consisted of two pounds of a mixture of oats, barley, and feed wheat, and two pounds of bran per steer. This was increased from time to time until by the first of April each steer was receiving daily 10 lbs. of grain and 2 lbs. of bran. The steers were not out of the stable after being tied up until they were sold.

The eight steers outside had a range of about 100 acres of rough rolling land some of which was well sheltered with scrub. Water was available in one of the coulees, the ice being cut every day. No shelter by way of sheds was provided. Grain was fed in a trough about three feet wide and high enough off the ground to prevent the steers getting in it. Straw was always kept before them in an inclosure of stakes that would hold about a load, arranged so that the straw could not be wasted by tramping over it. On December 3 they were started on a ration consisting of 2 pounds of mixed grain and 2 pounds of bran, this being increased from time to time, so that by April 1 each steer was getting 9 pounds of grain and 2 pounds of bran. For about six weeks rough hay was fed instead of straw. This is charged for at the rate of $2 per ton, which is its full value.

Both lots of steers were sold on April 22 for $4.25 per hundred with 4 per cent shrinkage. Following is a statement of the transaction:—

	Outside.	Inside.
Number of steers in lot	8	5
First weight gross	8,854 lbs,	5,695 lbs.
First weight average	1,106 "	1,139 "
Finished weight, gross	10,630 "	6,950 "
Finished weight, average	1,328 "	1,390 "
Total gain in 138 days	1,776 "	1,255 "

	Outside.	Inside.
Average gain per steer	235 lbs.	251 lbs,
Daily gain per steer	1·6 "	1·81 "
Daily gain per lot	12·8 "	9·05 "
Gross cost of feed	$100 76	$77 95
Cost of 100 lbs. gain	5 67	6 20
Cost of steers fed out of doors, 8,848 lbs. at 3½ cents	276 50	
Cost of steers fed indoor, 5,695 lbs. at 3⅛ cents	.....	177 97
Total cost to produce beef	377 26	255 92
Out of door steers sold, 14,135 lbs. at 4¼ cents, less 4 per cent	433 71	
Indoor steers sold, 6,950 lbs. at 4¼, less 4 per cent	.....	283 56
Profit on lot	56 45	27 64
Net profit per steer	7 05	5 52
Average buying price per steer	34 56	35 59
Average selling price per steer	54 21	56 71
Average increase in value	19 65	21 12
Average cost of feed per steer	12 59	15 59
Amount of meal eaten by lot of steers	8,892 lbs.	5,390 lbs.
Amount of straw	8 tons.	5,680 "
Amount of hay	6 "	2,840 "
Amount of millet	1 "	
Amount of ensilage and roots	.....	25,850 "
Amount of corn fodder	1 ton.	

INVESTMENT OF LABOUR.

The net profit as shown here, $5.52 on those fed inside and $7.05 on those fed outside, makes no allowance for interest on investment or labour involved in tending the cattle. For the outside lot the only investment was the price of the steers and the value of lumber for troughing, a total of $286. The labour incident to attending this lot, including the drawing of straw, feeding grain and cutting ice would at the outside not amount to more than the time of one man for one hour per day. The extra expense in attending 50 head would have been not more than the time required to draw the additional straw—a small item.

In feeding inside the investment is necessarily very much greater, no matter how economically the building be done. Provided a building suitable for stabling 30 steers could be erected for $1,000, an additional gross profit of $2 per head would be required to meet interest on the investment. The labour required to attend to the cattle fed inside was fully four times as much as that required when the feeding was done outside.

The point has been raised in discussions on this subject that a large part of the feed consumed by the cattle fed outside must be utilized to keep up the animal heat, and since those fed in a comfortable stable do not have the same waste of heat to provide for in the food consumed, they should on that account lay on fat more economically. It must be borne in mind, however, that cattle that are not stabled grow a coat of hair more resembling in its density that of a beaver than that of a steer, and that this provision aids greatly in conserving the animal heat. During the coldest weather that we had this winter, when for a week the temperature averaged 29° below zero, the steers did not seem to suffer the least, and were not standing around the straw pile with humped backs as one might imagine.

The cattle were always ready for their feed and none of them went off during the winter. The abundance of fresh air has no doubt a salutary effect in keeping the digestive system in tone.

The work carried on this winter is intended as introductory to more extensive trials. Experiments of the sort above outlined must be continued for a number of years, when different kinds of seasons are encountered, before the results can be considered of any great value. The past winter's results may be taken as representing what may be expected in an unusually mild winter free from severe storms or prolonged cold spells. How these results will compare with what may be obtained in a more severe winter remains still to be seen.

Outdoor Feeding by a Private Owner.

The results achieved at the Brandon Experimental Farm in the one season tried have been verified over and over again, year after year, on Manitoba farms. The following description of a number of years feeding near Newdale prepared by Mr. Grayson, Mount Pleasant stock farm, of that place, and published in the *Nor'West Farmer*, shows the method to be a profitable one even in severe seasons:—

Some fifteen years ago Mr. John B. Cook, of Newdale, in connection with the late Dr. Harrison, built a large barn and started somewhat extensively into the business of winter feeding of beef cattle. After about three years' experience during which time the balance was always on the wrong side of the ledger, another bunch of cattle was bought and fed hay in the shelter of the scrub which extends along the north side of the farm, the intention being to bring the cattle to the barn as the weather got colder. The cattle had access to open water in the ravines and appeared to be doing so well that they were left out all winter. A small allowance of grain was added to the hay about March 1. These cattle were sold early in the summer and were the first cattle to net their feeders a profit. Since that time Mr. Cook has

continued to feed from sixty to one hundred head of steers each winter, and the writer, as well as others, has done something along the same line with satisfactory results.'

'In this article I propose to give some idea of the work carried on here. In doing so I know I shall say things that are at variance with what most of us believe to be essential to the production of beef, but I would ask readers to remember that what I am writing is actual experience and not theory. Years ago Mr. Cook's plan was to buy in the fall a bunch of cattle, big, lean steers and thin cows and heifers, almost anything with a large frame that might be made to carry meat. But to-day nothing is selected but steers of good beef conformation and weighing from 1,100 to 1,300 pounds in the fall, steers that carry a considerable amount of flesh. Experience has proved that the fleshy steer is the most profitable to winter and makes better gains than the leaner one in the bunch, and we rarely find a steer so fat from the grass that he will not stand a finishing spell with grain. These steers have usually been bought from some regular cattle buyer, a premium being paid for the privilege of selecting suitable feeders.

'The steers are usually bought during October and allowed to run on the farms until winter sets in in earnest. As early as convenient after the steers are bought they are dehorned. Clippers are used for this purpose and a handful of lime is pressed on each stub to assist in checking the bleeding. With the approach of winter the steers seek the shelter and straw is drawn to them.

CRITICISMS ANSWERED.

'I have noticed from questions that have been asked me and from criticisms that the generally held idea regarding shelter is, that the cattle retire into the bottom of some thickly wooded ravine or into some heavy bush where they would be almost as much shut in as they might be in some sod building without windows. Instead of this the cattle prefer the high open spaces, with just enough scrub to prevent the snow from drifting over the straw. The cattle enjoy the life and especially enjoy the sunshine so long as the winds are broken from them.

'Here I may speak of another point and that is the manure. One of my critics of a previous article seemed to think that it would be out of the question to gather the manure from among the scrub. Now if straw is fed in a comparatively limited open space, until it reaches a depth of two or three feet of straw and manure, I fail to see the difficulty of getting it gathered up. And I contend that I know of no better way to convert large quantities of straw into useful manure than by feeding it liberally out of doors to grain fed cattle. In feeding straw it is necessary to use much more than the cattle will eat up clean, as by this means the cattle can always have a comfortable bed, and we aim to have them comfortable.

'About the first of December, or earlier, if the weather is severe, the cattle are given about four pounds of grain each day. The grain is all fed in the evenings in troughs about three feet wide, eight inches deep and raised about two and a half feet from the ground. The grain ration consists of a mixture of oats and barley chopped (barley principally) and bran, about one-third bran by weight. Finely ground chop gives best results and is most appreciated by the cattle. It is our plan to feed about sixteen hundred pounds of grain per steer during the feeding period, and the ration is increased in January to about eight pounds per steer per day and about April to ten pounds. This is continued until about June 20, when the steers are sold. If the grass becomes good in June less grain is needed at the finish.

'In feeding cattle on such dry ration, watering is of considerable importance. Those who are so situated that cattle can have access to open water at all times are especially favoured for this work; the cattle need to drink frequently and in small quantities. Where water is not so easily available it must be kept in the trough as much as the severity of the weather will permit, as a large drink of cold water follow-

ing long abstinence would chill any animal and cause temporary check to digestive processes. In regard to salt, we usually place a barrel in some convenient place and knock the head in.

'In carrying cattle until June, it is a great help if one has hay enough to feed for about a month after the snow goes, and by confining the cattle, so that they will not ramble too far, they can be made to at least hold their own during this trying period. The object in carrying cattle until June has been to wait for a profitable market. If the market on, say the first of April, was anything like equal to the market of June, I am sure that good results would follow the feeding of the same total quantity of grain in the shorter period.

'Now as to our business methods.—The steers are bought when cattle are at about the lowest, a premium over the market being paid for the privilege of selecting steers of approved type. In working out our balance sheet we have been in the habit of charging the grain fed to the cattle at the rate of 80 cents per 100 pounds. This we consider a fair price in an ordinary year. We charge interest, wages, and all necessary expenses and have been able with a margin of 1½ cents per pound between buying and selling price to have a balance on the right side of about an average of seven dollars per head.'

Experiences of Others.

The question of outdoor winter fattening was discussed at considerable length at the National Live Stock convention. The view held by many western grain growers, that winter fattening cannot be profitably done in the prairie provinces, was freely expressed, but it was just as readily refuted by those who spoke from experience. A delegate stated that he knew of a carload of cattle fed in the open air during the winter of 1896-7 on prairie hay and water, the gain averaging 100 pounds per head. Another speaker explained that 90 head averaging 1,250 pounds in the autumn, were made to weigh 1,400 pounds by spring, fed in a ravine in Manitoba. The feed consisted of straw and chaff that would otherwise have been burned, with grain chop. Charging for the grain and the labour, the steers made a clear profit of sixteen dollars ($16) per head. After summing up the various arguments presented, the chairman of the convention pointed out that it was simply the old story—some men could make it pay, while others, too careless or too lazy to do the thing properly, would fail in the fattening of cattle as they would in any other undertaking.

There are thousands of wheat growers who spend their winters in idleness after marketing the season's harvest. Continuous good crops, desirable as they are, have very great disadvantages for the farming community. Already are to be found in these new provinces, districts yielding little more than half the returns per acre they did some years ago, and while the yield, following continuous cropping, is going down, the land is becoming foul with weeds, whereas, a system of mixed farming, including the feeding of the straw and other rough feed to cattle, together with a suitable system of rotation, involving spreading the manure on the land, builds up the soil, keeps it clear of weeds, and hastens the ripening of the grain, thus reducing the danger from early frost.

There are in certain sections of the west, farmers who finish their cattle during the summer and ship them to the British market. An example of this may be seen on a farm near Moosomin, where Mr. R. J. Phin, is devoting his attention to this work. He handles about nine hundred (900) head each year, sometimes shipping direct to the old country. These cattle are gathered largely around Moosomin, and in the Moose Mountain country, where there is abundance of water and grass. The chief points of interest regarding his operations are—(*a*) the finishing on rape of cattle not otherwise fit to ship; (*b*) winter feeding.

MR. PHIN'S METHODS.

(*a*) Finishing cattle on rape:

'The land intended for this purpose is treated as a summer fallow during the early summer, and about the first of July is sown to the forage crop mentioned, two pounds of seed per acre being used, sown in drills. After the sowing is done, manure is applied with spreaders; surface cultivation is followed about once a week, thus keeping the weeds under. The cattle are turned on about September 15, and kept there until the frost sets in; in addition some chopped grain is fed. The cattle come off the rape in prime condition and ship well. The grains fed consist of oats, barley or frozen wheat, depending upon the price at which these may be obtained. Not only are the steers thus turned off in good condition, but the land is cleaned and made to bear a profitable crop of wheat, the straw being strong and the heads well filled. The packing of the soil seems to have the effect of preventing a rank growth of straw and also hastens the maturing of the crop. In 1908 sixty-five (65) acres were under rape, but some years double this quantity has been sown; this course of husbandry has been followed now for five years with satisfactory results.

(*b*) Winter feeding outside:

During the winter months, from one to two hundred steers are fed on cut straw and chopped grain. The equipment is not expensive, consisting of cheap wooden troughs, up about two feet from the ground on the leeward side of the buildings. Adjacent to the buildings is a yard with cheap sheds, but the steers fed there do not seem to make any greater gains than those altogether in the open. As remarked by Mr. Phin, 'A big well-fed steer seems to take little heed of the cold.' The cattle fed are practically all Shorthorn grades, which are preferred, as, in addition to being good feeders, they have size and weight.

The following statement by Mr. W. F. Puffer, M.L.A., of Lacombe, Alta., who is, in every sense of the word, a practical man, will be found both interesting and instructive:—

INTENSIVE FATTENING.

(*By W. F. Puffer, M.L.A., Lacombe.*)

'In the district around Lacombe and Red Deer, and in fact in that part of the province generally spoken of as Central Alberta, the winter feeding of cattle is becoming more general.

There is still plenty of grass throughout the district, but the farmer is already occupying considerable areas. The country is somewhat rolling with abundant water, and dotted with frequent groves of poplar and some spruce, affording excellent opportunity for winter feeding in the open without the expense of stabling.

The method of feeding which is now being generally followed and which, after an experience of twenty years of cattle feeding, the most of the time in Alberta, I have myself found to give the most satisfactory results, I will describe briefly.

First, let me say that I strongly favour feeding in the open, and that I am convinced that many of those who attempt feeding cattle do not feed grain with sufficient liberality to obtain the best results. This, I believe, is one reason why Canadian cattle are generally quoted on the Liverpool market one cent per pound lower than United States' cattle. In the United States feeding districts, cattle are put on a full feed of corn almost from the start, which is kept before them constantly for six or eight months. One hundred bushels of corn is reckoned as the requirement of an ordinary steer during the feeding period. This method gives rapid gains, pro-

ducing better cattle, which make better prices, than where limited grain rations are fed. The disposition of a thoroughly fattened steer is changed; he becomes docile and contented, ships better and thus brings a better price at the end of his life's journey. We have just as good cattle here as in the United States. Chopped barley, wheat and oats are fully equal to corn as a fattening ration, but we must give the cattle all they will eat of it, and when we learn to do this, I contend that our cattle will not sell at a lower price on the British market than United States' cattle.

I have been pleased to note that some good work is being done by the superintendent of the Experimental Farm at Brandon in outdoor cattle feeding, and I have read with interest reports of other Manitoba farmers who are experimenting along similar lines. I cannot help but think, however, that all these experiments would be better if they would adopt the method I here attempt to describe. At the time the Experimental Farm cattle were sold at Brandon last spring for 4½ cents, which I fancy was about their value, a good many cattle were being sold here for 4½ cents, but our best feeders were getting 4½ to 5 cents for cattle for export, and they had to contend with the long rail journey, extra freight and shrinkage and other expenses which would make cattle cost to the dealer in Montreal from 6 cents to 6½ cents per pound.

THE METHOD.

Where there is no natural shelter, a corral with a tight board fence about 7 feet high, with a rough, straw covered shed for stormy weather is necessary, and even where there is good natural shelter, cattle will do better with a roughly improvised shed in which to lie down during stormy weather. The rest of the equipment consists of racks for holding hay or rough feed, which should always be kept filled, and the cattle allowed access to them at all times. The grain feeding bunks should be placed in the centre of the corral or in the open, where the cattle can get all round them. They should be about 2½ feet high, 3 feet wide, with 8-inch sides to keep in the chop, and if made about 16 feet long will be found convenient. With cattle not dehorned, and until they are on full feed, about one of these bunks to every eight head is necessary; after they are on full feed a bunk would accommodate more cattle. Self-feeders may also be used and are very satisfactory.

It is perhaps needless to say that attention to the smallest details is absolutely essential to obtain the best results in the feeding of cattle, and this applies just as emphatically with cattle that are being fed in the open, as under the most artificial conditions. They must be provided with plenty of bedding, good clean straw a foot deep; all frozen lumps of manure should be regularly removed so that cattle may have 'solid comfort.' Remember that when cattle are lying down quietly and comfortably chewing their cud they are making the most money for the feeder.

As above stated, the feed racks should always be kept filled, and I always like to supply the best hay at the first of the season before the cattle have got on to the full grain feed.

I find, like Mr. Grayson of Newdale, that finely chopped grain is best, being more easily digested. Barley and oats ground together is what is usually fed; sometimes oats and wheat, but I have had better results from feeding barley alone. I like to put in three-year-old steers weighing about 1,200 pounds; I begin feeding about December 1st, 5 pounds of chop once a day, gradually increasing this till about the 15th of the month to 4 pounds twice a day, which is still further increased until by the end of the month 6 pounds twice a day is being fed. This is gradually increased for the next ten days or so, when a little chop will be left over in the bunks; they should then be filled up and never allowed to get empty. I find more grain is eaten the third month than the second. Steers, such as referred to above, will sometimes average two pounds per head per day when on full feed, depending on the size of the steer and the quality of rough feed and also, to some extent, on the weather. Steers

of good breeding will gain in weight in five months from December 1 to May 1, from 350 to 500 pounds. Such steers will continue growing after the date mentioned until sold, and I am sure no one ever yet experienced any difficulty in getting a good price for such cattle in the spring.

I suppose objection would be raised to the amount of grain fed, but I contend that half-way methods don't pay, and in my experience, the results obtained justify the extra quantity of grain. On limited rations, steers do not become contented; they remain on their feet too much of the time playing and fighting, thus wasting a certain amount of the feed consumed, whereas when put on full feed, even the wildest cattle soon become lazy and lie down a great deal of the time, when, as I have already said, they are making flesh economically.

Another important item is the water supply, and it is most essential that water should at all times be available. If water is supplied from a well, a tank heater is a necessity to keep the water in the troughs from freezing, and it will pay for itself in a short time if twenty head or over are being fed. If the water is supplied from a lake or a stream then ample water holes should be provided, and attention should be given that these are made convenient for drinking from, so that the animals can stand comfortably. This can be done by making a long opening in the ice, say not over twelve inches wide, and as long as necessary. A little ledge should be left all around the edges of the water hole to keep their feet from slipping in, and the ice should be chopped away at the back so that their hind feet are down almost on a level with their front feet. The ledge round the water hole will also prevent the water from becoming contaminated on warm days. Barrel salt I find best and it should not be allowed to get lumpy or hard.'

Operations of a Large Firm.

Many other Alberta feeders are adopting intensive fattening methods. A representative of this Branch, travelling in Alberta, reports the operations of one firm that had in the winter of 1908-9, 1,400 head on feed at three points—Carbon, Midnapore and High River. At High River, where 485 head were feeding, the cattle had only a bush shelter on the banks of the river. In January when visited they were getting all the hay they could eat, and a meal ration of 16 pounds per day. The meal consisted of a mixture of two-thirds oats and one-third barley ground fine. This meal was fed in self-feeders of which there were thirty, these being filled every second day. The cattle when seen in extremely cold weather appeared comfortable and contented. They were eating comparatively little hay—about four tons per day, or 16 pounds per head, which is about equal to the weight of meal consumed. They had free access to salt and to High River water. While they had not been weighed they appeared to be putting on weight rapidly. Three men were able to look after this herd of 485 head, including the work of grinding the grain by means of an engine and chopper.

WINTERING CALVES.

There is perhaps no greater loss in the entire ranching industry than that arising from the usual methods of wintering calves. Not only are many promising calves lost from exposure and shortage of feed during severe periods, but practically all that have come through the winter have lost weight and become stunted for future growth. Those who have taken the trouble to weigh their calves in fall and again in spring have been surprised to learn that fully 200 pounds of flesh per head have been sacrificed by allowing the youngsters to take their chances on the range along with the herd. Calves that weighed 600 pounds at the beginning of winter had actually shrunk to 400 pounds by spring, losing just one-third their weight, and this all flesh, as neither bone, hide nor horn had been reduced. Any stockman can readily imagine the time

it requires for such animals to regain the lost ground. It is fair to estimate that fully a year is lost in the animal's growth and a year delayed in the time the ranchman must wait for the price of his crop of steers.

Is there a better way practicable? That is the question which concerns the cattleman. Housing is not an easy problem and help is expensive, but something must be done to prevent or reduce the enormous loss from fatalities, shrinkage and stunting, that goes on from year to year. A year's saving of time and feed would do a great deal towards a provision for caring properly for the calves, especially since it can be done without expensive housing, or even the feeding of grain.

Many up to date ranch owners are recognizing the importance of proper shelter and feeding and make special provision for the calves during the first winter. Rough sheds are constructed in which they are run loose and fed on hay and oat sheaves or other suitable feed. Others bring their calves through successfully without the sheds. Mr. W. E. Tees, of Tees, Alberta, the owner of a herd of good cows, winters his calf crop satisfactorily without buildings. Describing his experience and system, Mr. Tees writes as follows:—

'I will try to give you my plan and experience in wintering calves. I have never weighed before or after wintering, but I am sure I can bring them through the worst winter in very satisfactory form. During the hard winter of 1906 I had to change my usual plan, as the snow was too deep for grazing, so I held them in a yard or corral. That winter I had some 40 head, and fed them on wild hay and green cut oat feed, and I certainly had a fine bunch of calves in the spring with no loss. I will try and explain my usual plan, describing what I am doing this winter:—

First, I have a good amount of pasture land under fence; in the fall I cut and bunch all the available hay on wild land and leave it in the bunch for calves to run to. Then there is usually some fall wheat or rye stubble land, as I do not fall plough, and I have plenty of straw stack for them to run to. About the last of October, I take the calves from the cows. I place them in a large pasture of twenty or more acres, under high pole fence, securely built, so that it is impossible for them to get to the cows, but still have a good range. There I give them the best of hay, with either a straw stack or some green feed. In 48 hours after separation I let them all to the cows again, but this is really to benefit the cows, as by letting them drain the cows at this time there is no danger to the cows' udders. This plan I have always followed. I do not try to drive the cows to another inclosure, as some do, but they are separated from the calves only by this pole fence, therefore they are near each other all the time. It is surprising how little they worry and fail. The weaning is accomplished without perceptible shrink or falling off in flesh. In about two weeks' time I can turn them into the stubble field where they have access to wild hay and where they will remain till grass comes in the spring. However, should the feed mentioned not hold out, I am careful to take them plenty of wild hay. I do not feed any grain and have no buildings for them, only the bush and straw stacks.'

RAILWAY TRANSPORTATION.

The best of beef may be raised and finished in our western provinces, but unless it can be marketed in good condition, and at reasonable cost, its production is not likely to be continued. The home demand will of course grow, as population increases and towns and cities multiply, but farming is certain to remain the chief industry and beef production will undoubtedly always exceed local requirements. Outside markets will therefore be necessary and the means of reaching them must be duly considered.

The transportation facilities furnished to western cattle shippers have, for long, been declared altogether inadequate. It is charged that the supply of stock cars is irregular, uncertain and insufficient, their construction faulty, their equipment defec-

tive, that engines are overloaded and the speed of trains thereby greatly lessened and that as a consequence of these conditions cattle in transit undergo much needless suffering and their owners serious financial loss. While there is doubtless good ground for these complaints much of the trouble unquestionably arises from the fact that until within the last year or two, export shipments have been confined to a period, little, if any, exceeding three months during which one railway company has had, in addition to meeting the demands of ordinary live stock traffic, to do its best to move from 50,000 to 80,000 head of cattle over an average distance of 2,000 miles. The cattle shipping season in each year also overlaps the great eastward grain movement during which every effort must be made to get the crop to the terminal elevators before the close of navigation. In spite of these extenuating circumstances, however, there is both need and room for improvement, and although the adoption of winter feeding, which will change and extend the shipping period, and the near advent of railway competition will doubtless greatly better existing conditions, the reasonable demands of the present day trade must be given reasonable consideration.

At the National Live Stock convention held here last year, the western cattlemen present declared that without prompt and radical reforms in transportation methods their export trade could not, under the altered conditions of beef production, be any longer profitably carried on. As a result of the statements made by these gentlemen, the convention passed unanimously a resolution that the matter should be referred to the Railway Commission for action and it is very gratifying to know that, on the request of the western stock growers, that Board is, with characteristic promptitude, now actively engaged in remedying as far as possible the faulty conditions which have caused so much dissatisfaction and given rise to so many complaints.

SHIPPING HINTS.

In shipping cattle practical experience is of immense value and if the shipper himself is lacking in this qualification, he should endeavour to secure the services of a reliable and trustworthy man, especially if he intends doing business on an extensive scale. By following this course he will save himself much time, worry and money. This is particularly true in the case of shipments to distant and above all to foreign markets. Unless one knows the ropes, he is certain to find himself often at a loss and so driven into the hands of commission men and others who, whatever they may do for their regular customers, seldom show much compassion or consideration for the chance wayfarer, who is trying to do business on his own account. Loading must be carefully watched—overcrowding in a single car of a train load may mean a heavy loss. Cars should be clean and well bedded or sanded to prevent slipping; they should be in good, sound condition, and each should be closely examined inside to ensure that there are no projections such as splinters, bolts or nails likely to injure the stock.

Where hay is fed in transit, its distribution should be carefully supervised and a any time when car doors have been opened they should be properly closed before the train moves.

At feeding points the shipper must insist on ample time and space being allowed for rest, and must see that the feed and water supplied are of good quality and that each animal has an opportunity to get its reasonable share of both.

Undue delays in furnishing cars or in the movement of trains as well as all cases of injury to stock through rough handling, violent shunting, or otherwise should be promptly reported to the proper railway officials, who are generally more interested than their subordinates in seeing that satisfactory treatment is afforded to shippers. By looking sharply after their own interests in matters of this kind shippers will avoid much annoyance as well as financial loss.

It is almost superfluous to say that cattle ship much better when dehorned. This should, however, be done sometime beforehand, preferably when close feeding begins

or better still when they are calves. The dehorning of range cattle which are to be winter fed is especially advisable as it tends to make them quieter and much more peaceable than when the horns are left untouched.

THE DRESSED MEAT TRADE.

Fully aware of the disadvantages attending the present methods of marketing, the more advanced thinkers among our western stock growers have, for a long time been earnest advocates of the establishment of a dead meat trade. There is no doubt that if the enterprise were properly financed, started on a sound basis and conducted in an honest and business-like mannner in the general interest of the producer, there would be far less actual wastage than at present. It is altogether likely that, had it been possible to secure the required capital, the trade would have been inaugurated years ago. For such an undertaking on a scale sufficiently extensive to furnish effective relief, however, a great deal of money is necessary and as our western ranchers are, like the eastern farmers, not much in favour of the co-operative principle, while several large interests have been rather opposed to any change in existing conditions, nothing definite has yet been done. A number of packing establishments in which both beef and pork are prepared for local and Pacific coast trade are now in operation in Alberta and Manitoba, but no serious attempt has ever been made to develop and build up an export industry in meats or meat food products. It is true that in recent years some members of the great American Meat Trust have established outposts in the Canadian west with results, so far at least, beneficial to the stockmen, and it is possible that this action on their part may be only preparatory to larger operations, provided the field is found to be sufficiently promising. It is questionable, however, bearing in mind the methods usually followed by these gentlemen, once their grip is assured, whether the establishment of a Canadian dead meat trade under their auspices is a consummation devoutly to be wished.

Such an enterprise to be productive of the greatest benefit to all concerned, should be under effective public control, and it is to be hoped that in the not too far distant future some practicable scheme will be evolved which, while affording a better and more reliable and regular market for our western live stock, will still leave the producer free from the trammels of any trust, whether foreign or domestic.

ADVANTAGES OF DEAD MEAT TRADE.

The advantages to be gained from the establishment of an export trade in dressed meat are, in the opinion of those who have most fully and carefully considered the subject, quite beyond question.

In the first place, as has already been shown there is a very serious loss from the unavoidable shrinkage which occurs in the carriage of live cattle by land and sea over the enormous distance which separates the original seller from the ultimate buyer. While this shrinkage will, no doubt, become proportionately smaller with the general adoption of improved methods of handling, finishing and transporting the stock, it can never be entirely eliminated and even when reduced to a minimum, it will, I think, be found to constitute the determining factor in establishing the superiority of the dead meat trade from the profit point of view, at least as far as concerns all cattle except those of the very best quality and finish.

As will be shown later there is good ground for the belief that animals of the class last mentioned will continue to be profitably disposed of on the hoof.

Secondly, the competition which would be afforded by a sanely established, honestly conducted, and properly controlled dead meat trade would have a marked steadying effect on the prices paid to producers. With such a trade in constant operation, we

would not see so often the fluctuations in values which now occur, and which are often undoubtedly due to friendly arrangements between buyers, many of whom unfortunately appear unable to resist the temptation to feather their own nests unfairly by unduly cutting prices when stock is plentiful and easy to obtain. Dealers in Canada as well as in the United States and other countries never seem to learn that tactics of this sort cannot be counteracted by the payment of high prices when stock is scarce and when, as a rule, but little remains in the hands of the producer. Scarcity of this kind is almost always attributable to the discouragement and disgust of the farmer or feeder, who, feeling that he has not received fair remuneration for his feed and labour, disposes of all his stock and ceases to be a producer. If buyers of live stock, which, to a greater degree than any other farm product, suffers from petty price manipulations, could only be made to grasp the fact that the time for small profit margins is when prices all round are low, they would soon begin to reap the benefits of self denial in the form of a steady supply, and a regular if perhaps not excessively profitable trade. So long as they continue as at present to shake the confidence of the producer by scheming for unjust profits when stock is plentiful, so long will they continue to suffer, as many of them are now doing, from a shortage of raw material, not only disastrous to themselves, but involving great national loss.

Another and by no means unimportant reason for the establishment of a dead meat trade is one which has been plainly set before us on two different occasions within recent years.

In 1902 and again during the winter just past, foot and mouth disease made its appearance in the United States, with the result that large areas were in each instance at once debarred from participation in the export live stock trade. While this was serious enough for those portions of the United States concerned, it was, for geographical reasons, of trifling importance, when compared with the results which would inevitably have followed a similar outbreak in Canada.

The United States has a long Atlantic coast line, and many different seaports, situated far apart, and served by numerous widely separated lines of railway. They have also, in constant operation, a complete system of fully equipped modern abattoirs, refrigerator cars and ships, which enable them on the shortest notice, to convert their export live stock into dressed meat, which can be sent forward without let or hindrance.

We, in Canada are in an entirely different position; our Atlantic seaports are few in number, and the railways leading to them pass in convergence through a narrow neck of land, measuring only a few miles from north to south.

We were on both occasions, fortunately successful by efforts much more strenuous and exacting than is perhaps realized by the majority of Canadians, even those most interested, in preventing the introduction to the Dominion of this notoriously infectious and easily transmitted disease. Had these efforts failed our export live stock trade would have been stopped at once. The British authorities would undoubtedly, and from their point of view, very properly, have prohibited the importation from Canada of live cattle, as well as sheep and swine. As a matter of fact, it was only with the greatest difficulty that they were induced to refrain from scheduling Toronto and a large portion of western Ontario during the last outbreak in which the States of New York and Michigan were involved. This attitude on their part was due to the fact that in the advices from Philadelphia, the origin of the outbreak in Pennsylvania, which was the first to be recognized, was wrongly attributed to a shipment of cattle from Toronto. I was fortunately, at the time, in close personal communication with the British Board of Agriculture, and it was only by the strongest representations that the action above indicated was averted. The Board, however, insisted on a farm to farm inspection of the whole of the area to which any suspicion could possibly be attached, and it was, therefore, at its direct instance, that this particular line of work was undertaken and carried out.

Canada is practically without abattoirs equipped for the slaughter of cattle except to a very limited extent for the home market; she has no system of refrigerator meat cars, and has, entering her ports, very few ships fitted for the carrying of chilled meats. In view of these facts, it is scarcely necessary to dwell on the risk which she is constantly carrying. At any time, in spite of the best efforts of her veterinary sanitary service, the appearance within her borders of one or other of the diseases scheduled by the British Board of Agriculture, is within the range of possibility. As matters now stand, were such a thing to occur, especially during the short period in which our western cattle are shipped, or at the time when our winter fed steers are being marketed, the consequences to the producer would be disastrous, while the whole trade would receive a blow, from which it would require many years to recover. For this reason, if for no other, the establishment of a chilled meat trade on sound business lines and under proper control, may fairly be termed a matter of national importance.

LIVE CATTLE TRADE MUST BE CONTINUED.

It must not be forgotten, however, that there is a constant paying demand in Britain for home-killed dressed beef. This demand is certain to continue and as it can never, under existing conditions, be fully met by the British feeder, it is likely to remain profitable to those countries which, owing to their freedom from disease, are permitted to land live cattle in Great Britain, and are at the same time so situated geographically as to be able to transport such cattle at a reasonable cost and with not too great a risk of loss.

In these two respects Canada occupies, and will probably continue to occupy, a most favourable position. Many countries which, under other circumstances, would be our keenest competitors, have been compelled, for one reason or another, to abandon their export trade in live stock for that in chilled or frozen meat. As they are year by year improving their facilities for the carrying on of this trade, the supply of dead meat in the British markets, is likely, in the near future, to exceed the demand. In the United States, the only country at present in a position to compete with Canada in the live cattle trade, the home consumption of meat is increasing so rapidly, that the surplus for export is likely soon to be a negligible quantity.

It would thus appear that while the establishment of a chilled meat trade is necessary and advisable, it would be a short-sighted policy to contemplate the complete abandonment of our present export business in live stock. It should, therefore, in my opinion, be not only continued, but fostered and encouraged, by making the conditions surrounding it as nearly perfect as possible. This can best be done by the maintenance of strict government supervision, involving full control of the methods adopted in transportation and the establishment of some comprehensive system of inspection, which, in addition to the present examination for health, would include the rejection of any animal of inferior quality or condition.

It is, to my mind somewhat doubtful whether it would be possible, in the face of the keen competition of an honestly conducted dead meat trade, to profitably ship grass fed cattle on the hoof from western Canada to the British market. There is, however, no question that given better transportation facilities than at present exist, a profitable business could be done in grain fed western steers, as well as in the stall-finished cattle from Ontario and other eastern provinces.

In any event it is well to have two strings to one's bow and as each line of trade would steady and balance the other, it is to be hoped that, in the near future, we shall see both firmly established on a solid and paying basis.

I have the honour to be, sir,

Your obedient servant,

J. G. RUTHERFORD,

Veterinary Director General,
and Live Stock Commissioner.

The Honourable SYDNEY FISHER,
Minister of Agriculture.

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DEPARTMENT OF AGRICULTURE

CANADA.

REPORT

OF THE

VETERINARY DIRECTOR GENERAL

AND

LIVE STOCK COMMISSIONER

J. G. RUTHERFORD, C.M.G.

For the Year ending March 31, 1911

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1911

[No. 15c—1912.]

REPORT OF THE VETERINARY DIRECTOR GENERAL

AND

LIVE STOCK COMMISSIONER.

HEALTH OF ANIMALS AND LIVE STOCK BRANCHES.

OTTAWA, March 31, 1911.

SIR,—I have the honour to present my report as Veterinary Director General and Live Stock Commissioner for the year ending March 31, 1911.

In both of the branches under my direction and in each of their several divisions, the year has been characterized by marked activity.

Greater progress has, of course been made in some lines than in others, but speaking generally, the results of the year's work are encouraging, and all things considered, to at least a reasonable degree, satisfactory.

The year, like those immediately preceding it, has been one of remarkable national growth and development and, as a natural consequence, the demands on those branches of your department devoted to the fostering and safeguarding of the live stock industry have correspondingly increased.

The Canadian live stock situation is at all times an interesting object of study, but it is very doubtful if at any former period in the history of the country it has been as well worth watching as it is at the present moment.

Until very recently, it appeared as if Canada would always have an abundant supply of live stock of all kinds, not only for her own use, but for export as well. In fact it seemed that the principal difficulty with which those of her citizens engaged in the live stock business would have to contend would be that of finding profitable markets for an ever increasing and practically limitless surplus.

Circumstances have, however, brought about a very great and, to my mind, a very serious change in the live stock outlook. Although many of the newcomers in Western Canada are on the land and therefore, in a sense, agriculturists, the conditions are such that but few of them are devoting any great attention to animal husbandry, and past experience indicates that some considerable time is likely to elapse before they are compelled, by the gradual exhaustion of the soil, to turn to mixed farming and the systematic production of commercial live stock. For some time therefore the majority of these people will themselves be consumers rather than producers of meat.

The continued augmentation of our urban population, due to the extraordinary industrial and commercial activity, stimulated by the rapid development of the west, as well as by the general progress of the country, has also largely increased the consuming as compared with the producing public. Further, the habits and tastes of the people have altered with the times, and the general prosperity has brought about a higher standard of living, resulting in a greater per capita consumption of meat and meat food products.

It is certainly somewhat remarkable that, in view of these conditions, the general production of live stock throughout the country as a whole, instead of showing the distinct advance which might reasonably have been expected, appears to have scarcely maintained a normal rate of increase.

As a consequence the Canadian export trade in live stock and in meats is rapidly decreasing in volume and bids fair to shortly altogether disappear. Not only is this the case, but imports of meat are increasing from day to day from the United States, from the Argentine and from far away Australia and New Zealand. For a number of years back, mutton from the Antipodes has been competing in the British Columbia markets with that from Washington and Oregon, an occasional carload being shipped as far east as Alberta. During the past winter, however, frozen mutton, as well as frozen rabbits from Australia have been landed at our Atlantic seaports and sold to Canadian consumers in Toronto and Montreal.

Canned meats, principally beef, from the Argentine are also being imported and although the quantities hitherto brought in are comparatively small, the trade is said to be profitable and to show promise of rapid extension, shipments having been made from the east as far as Regina. Recently also there has sprung up an import trade in American sheep and lambs, very considerable shipments having been made from Buffalo and Chicago to Toronto and Hamilton.

These somewhat remarkable trade features have been made the subject of careful study as will be seen by reference to that portion of this report which deals especially with the Live Stock branch.

I have however deemed it my duty to lay the situation, as above set forth, before you in the forefront of my report, as I feel that it is a matter of great importance to the general welfare of the country and one in which the public of Canada will very naturally expect your department to take an intelligent interest and, if possible, devise ways and means likely to be effective in bringing about a more satisfactory state of affairs.

So far as the sheep industry is concerned a good beginning has been made by the appointment last year of the two commissioners, Messrs. Dryden and Ritch, whose labours are now nearing completion and whose report I hope to be able to present to you in the very near future. I am of opinion that with the fund of information thus rendered available, it will be possible to formulate such a policy as will be instrumental in inducing our people to devote much more attention than they are at present doing to this most useful and profitable of farm animals.

The report of the Swine Commission, which, during the summer of 1909, visited Denmark and the United Kingdom, has been widely distributed, as have also the excellent bulletins on Sheep Husbandry and the Production of Beef which were issued by the Live Stock Branch.

It is evident, however, that something more than literature, no matter how practical, is required, and I feel satisfied that an energetic, demonstrative campaign conducted on well considered lines and supported by liberal financial assistance, would effect an immense amount of good in bringing many of our farmers to a realization of the unfortunate position into which they have allowed themselves to drift by neglecting the cardinal principles of live stock husbandry.

A number of additions to and changes in the staff of the branches have taken place during the year just passed.

In the Diseases Division of the Health of Animals Branch, Drs. H. S. Cawsey, N. D. Christie, G. C. Cockerton, H. L. Dixon and J. E. Beaudry, having passed the special qualifying examination, were duly appointed veterinary inspectors under the Animal Contagious Diseases Act, while Drs. R. MacAfee, A. McEwen, J. W. Black, N. McCarthy and C. E. Waddy have been appointed veterinary inspectors with authority to make inspections of stock shipped from points in the mange infected area in Alberta and southwestern Saskatchewan.

Dr. D. McChesney was appointed local boundary inspector at the port of Sault Ste. Marie while Dr. H. McCullough has received a similar appointment at the port of Cobourg.

Inspectors B. A. Bescoby, R. H. Cook, K. R. Foster, M. Barker, D. McMillan, E. C. Gaw, J. McLeish and G. Townsend were transferred from the Meat Inspection service to the Diseases Division.

Inspectors A. G. Hopkins and A. Dauth resigned from the service during the year and there have also been several dismissals.

In May Dr. T. C. Evans was appointed an assistant pathologist at the Biological Laboratory here.

In October Dr. D. Tamblyn was transferred from Vancouver to Regina and placed in charge of the work of the Diseases Division in Saskatchewan and at the same time Dr. S. Ransom, who had resigned some months previously from the Meat Inspection Division, was appointed an inspector under the Animal Contagious Diseases Act and placed in charge of the Vancouver office under the general supervision of Dr. S. F. Tolmie.

Dr. Pethick was transferred from Antigonish, N.S. to Charlottetown, P.E.I., to take charge of the work of both divisions of the branch in that province, his place as general inspector in Nova Scotia being filled by the appointment of Dr. Geo. Townsend, who was transferred from the Meat Inspection Division.

In August 1910, the Health of Animals Branch suffered a heavy loss through the death of Dr. Andrew Smith, who had been connected with the service for many years. The founder of the Ontario Veterinary College and its Principal for a period of nearly fifty years, Dr. Smith was one of the best known and most highly respected veterinarians on this continent, being almost as well known in the United States as he was in Canada. Owing to his advanced age he had not, during recent years, been called upon to undertake any active official duties, but his professional ability, his intimate knowledge of live stock conditions, especially in Ontario, and the great influence which he wielded among the members of the veterinary profession throughout the Dominion, rendered his connection with the department, which was maintained to the last, a very valuable one. Dr. Smith possessed in a marked degree the faculty of making and keeping friends, and the many graduates of the Ontario Veterinary College feel that in his death they have sustained a great personal loss.

The following Veterinary Inspectors have been added to the Meat Inspection Division staff:—

J. F. Campeau, M.V.
A. Compton-Lundie, V.S.
J. L. N. Couture, M.V.
J. G. Davidson, V.S.
R. B. Dellert, V.S.
J. E. A. Duhamel, M.V.
R. Duhault, M.V.
H. J. Elliot, M.D.V.
H. Garrett, V.S.
J. O. Guertin, M.V.
J. Langevin, M.V.
F. A. McNally, V.S.
A. R. Munroe, V.S.
W. Moynihan, V.S.
C. L. Wallace, V.S.
R. G. Wilson, V.S.
E. C. Gaw., V.S.

Mr. G. T. Hamel has been engaged as a special inspector of canneries, while the following lay inspectors have been added to the force under the Meat and Canned Foods Act.

C. Brittain.
Edwin Cox.
E. Dufresne.
E. Lallemand.

In the Live Stock Branch several changes have also taken place. Following the promotion of Mr. J. B. Spencer, B.S.A. to the position of editor of the Publications Branch, Mr. H. S. Arkell, B.S.A., was temporarily appointed to the position thus rendered vacant. His appointment as Assistant Live Stock Commissioner has just been confirmed.

In June the resignation of Mr. G. H. Greig, of Winnipeg, who for some years back occupied the position of western representative of the Live Stock Branch, was accepted.

There have been also a number of changes in the personnel of the non-professional members of the staff.

Personally, I have as usual been very busy during the year. Owing to the large and constantly increasing operations of the branches under my direction, I have endeavoured to spend as much time as possible in Ottawa, but have, nevertheless, found it necessary to do a good deal of travelling.

In May the International Commission on the Control of Bovine Tuberculosis met in Ottawa, when, through the courtesy of the Honourable W. C. Edwards, an opportunity was afforded of seeing what had been done in connection with his fine herd of Shorthorns at Rockland.

In June I addressed the Canadian Medical Association in Toronto on the subject of Bovine Tuberculosis and its relation to public health. Towards the end of June another meeting of the International Commission on the Control of Bovine Tuberculosis rendered it necessary for me to go to Madison, Wisconsin. At this meeting the report was finally adopted and entrusted to me for presentation to the American Veterinary Medical Association.

From Madison I went to Winnipeg, where I met, by appointment, the officers in charge of Manitoba, Saskatchewan and Alberta and discussed with them various matters relating to their official duties.

Returning to Ottawa, I remained there almost constantly until the end of August when I proceeded to San Francisco for the purpose of attending the annual meeting of the American Veterinary Medical Association and presenting in my capacity as chairman, the report of the International Commission on the Control of Bovine Tuberculosis.

From San Francisco I went to Victoria and Vancouver, where I met Dr. Tolmie, the officer in charge of the work of the Health of Animals and Live Stock Branches in British Columbia.

While in that province I visited several of the boundary quarantine stations and was also fortunately able to arrange for the opening of suitable offices in Vancouver and Victoria, with the view of bringing about a general improvement in the carrying on of the work. I also interviewed Dr. Seymour Hadwen, one of the pathologists of the Health of Animals Branch, who is engaged in investigating the disease of cattle known as red water, which is found troublesome in certain districts of British Columbia.

Early in October I visited Calgary where I met Dr. Hargrave, Chief Inspector for Alberta, and discussed with him all matters relating to the Diseases Division in that province. Coming east to Regina, I spent a few days with Dr. Hilton, Chief Veterinary Inspector who had for some time been paying special attention to Saskatchewan.

Returning to Ottawa on October 20, I remained there until February, when I found it necessary to attend a number of breeders' meetings in Toronto and Montreal.

While in the former city on that occasion I addressed the annual convention of the Ontario Association of Fairs and Exhibitions on the legislative control of horse breeding, a subject to which I have for many years devoted a good deal of attention.

Later in the same month I was present at a meeting of the International Commission on the Control of Bovine Tuberculosis at Buffalo, N. Y.

Occasional visits to points in Ontario and Quebec were also made throughout the year, as occasion demanded, in connection with the various lines of work.

Although the tenth year of my service has not yet elapsed, the present report as head of the Health of Animals Branch is, owing to the change in the fiscal year, which took place in 1905-6, actually the tenth which I have had the honour of presenting to you.

This being the case, I think it only right and proper to lay before you a brief résumé of the operations of the Health of Animals Branch covering the period during which it has been under my supervision.

This is also my fifth report as Live Stock Commissioner, and I am, therefore, adopting a somewhat similar course with regard to the work of the Live Stock Branch.

HEALTH OF ANIMALS BRANCH.

It is but a little over nine years since, at your request, I assumed the duties of Chief Veterinary Inspector and began to lay the foundations of what is now the Health of Animals Branch of your department. Previous to that time the veterinary sanitary service of the Dominion was of a decidedly rudimentary character, being conducted by the deputy minister with the assistance of one or two minor officials, supplemented by occasional advice from the then Chief Veterinary Inspector, who was not in any sense an executive officer and who was not expected to devote much time to the work.

I soon realized that the task before me was one of no small magnitude, but having accepted the responsibility I made up my mind that I would do what I could to organize for your department a national veterinary service adequate to the growing needs of the country.

The first matter to be decided was the scope of the work to be undertaken and as the subject naturally divided itself into two sections, namely (1) Quarantine—or the guarding against the introduction of disease from without, and (2) Sanitary service, or the control of diseases already existing in Canada, it will, I think, be well to take these up in that order, and to state as briefly as possible what has been done in each.

QUARANTINE.

On my accession to office, I found that with the solitary exception of the animals quarantine station at Point Levis—which although composed of buildings of cheap construction and temporary character, and vitally defective in another particular, which defect I regret to say has not yet been remedied, is, and so far as I can judge, always has been, a well conducted and reasonably effective establishment—there were literally no quarantine stations on the Atlantic seaboard.

The buildings at Halifax, or rather at Dartmouth, had, some years before, been almost entirely destroyed by fire, while those remaining, as also the fences, had been removed piecemeal by the neighbours. There were no landing facilities, so that, even had the buildings which were within a mile of the steamship landing been fit for occupation, it would have been necessary to convey stock nearly twenty-five miles by rail in order to reach them.

At St. John, N.B., a small, antiquated and altogether unsanitary stable situated in West St. John, at a considerable distance from the steamship landing, had been leased by the department for quarantine purposes. As the sole way of reaching this stable was by road, the quarantining of cattle could only be accomplished by driving them through the streets of the city, smaller animals being sometimes conveyed by wagon.

At Charlottetown, although listed as a quarantine station, no quarantine facilities have ever existed nor have any animals been quarantined there during my term of office.

On the Pacific coast, Vancouver and Victoria were officially quarantine stations but no facilities whatever existed at the former, while at the latter a few unenclosed and tumbledown sheds, unkempt and uncared for, were supposed to be available for departmental purposes when required.

Along the international boundary line matters were even less satisfactory. At Niagara Falls a small shed had been built at the expense of the department on the premises of the local veterinary practitioner, who acted as inspector at that point.

At Point Edward the old quarantine buildings were situated on land leased from the Grand Trunk railway and used as a summer camping ground by citizens of Sarnia, several miles from the Tunnel station. While these buildings had once been good and fairly well adapted for quarantine purposes, they were far too extensive for the existing needs of the department and were, besides, so inconveniently situated as to add very considerably to the expense of making importations of live stock.

At Emerson, Manitoba, the department held the old buildings at Fort Dufferin, originally constructed for the International Boundary Commission and later used as a depot for the Northwest Mounted Police on the formation of that force in 1874. This so-called quarantine station, which was situated some miles from the boundary and from the nearest railway station, comprised also about one hundred and twenty acres of land and was used as a farm by the caretaker who kept his own live stock on the premises.

With these exceptions there were no quarantine facilities of any kind on the international boundary.

To-day there is at Halifax an excellent, modern, sanitary quarantine station, erected on ground purchased by the department in 1905 from a private owner, and situated on the cotton factory siding of the Intercolonial Railway. Animals to be quarantined are conveyed by rail direct from the deep water terminus to the station, and the cars conveying them are promptly cleaned and disinfected before being again used.

At St. John, N.B., two excellent, modern, sanitary buildings have also been in use for some five years. These are situated on an isolated piece of property leased from the Intercolonial Railway in 1904 ,and located conveniently to the yards of that company. As at Halifax, animals are conveyed by rail direct from the steamer to the quarantine station and similar precautions are taken with regard to the cars used.

The great defect in the quarantine station at Point Levis, to which reference has been made, lies in the fact that animals, in order to reach the station have to be driven over the public roads. I have, as you are aware, repeatedly urged the importance of remedying this state of affairs which, so long as it is permitted to exist, will be a constant menace to the country and a serious reflection on the efficiency of the service. I cannot refrain from again impressing upon you the vital necessity of taking, in the near future, such steps as will effectually remedy this most serious defect and by so doing, confer upon the quarantine station at Point Levis that element of safety essential to institutions of the kind and to which, from its importance, it is so well entitled.

At Victoria a new lease has been negotiated, the buildings have been enclosed, repaired and kept in a thoroughly sanitary condition and although the expenditure has been trifling, the station is no longer a discredit to the department.

At Vancouver a suitable stable, conveniently situated, has been held under lease for a number of years and arrangements are now in progress for the erection by the same owner of a more substantial, sanitary and up-to-date building to be rented to the department for a number of years at a fixed rate.

Along the international boundary many new stations, of various kinds, according to the local requirements, have been constructed and are in operation.

At White Rock, B.C., owing to changes in the alignment of the Great Northern Railway which enters Canada at that point, there has been some unavoidable delay in providing quarantine facilities. A suitable site has now been selected, however, and construction will shortly be commenced.

At Huntingdon, B.C., a comfortable stable with the necessary yards and corrals, as also an office for the use of the inspector in charge, has been erected on land leased from the Canadian Pacific Railway.

At Bridesville, on land leased from the Victoria, Vancouver and Eastern Railway, a small but convenient stable has just been completed, while at Myncaster a stable is held under lease from a private owner.

At Osoyoos suitable facilities have been provided through a special arrangement with the Customs Department, while at Midway a stable with convenient corrals was erected in 1907 on land leased from the Canadian Pacific Railway.

At Grand Forks a small stable is held under lease, and the same plan is followed at Rossland.

At Nelson our stables and yards, which were situated on land leased from the Canadian Pacific Railway, were, last year, unfortunately destroyed by fire. Pending reconstruction we have a small stable close by, under lease.

At Kingsgate, B.C., on land leased from the Canadian Pacific Railway, and at Gateway, on land leased from the Great Northern Railway, are situated modern and convenient stations comprising stables and corrals suitable for handling all classes of live stock.

At the ports of Twin Lakes and Coutts, Alberta, accommodation similar, but not quite equal to that at Kingsgate and Gateway, is available. At Coutts, as at most of the other prairie stations, there is also a dipping vat for the treatment of animals suspected of being affected with diseases of the skin.

At Pendant d'Oreille, Alberta, and at Willow Creek, Saskatchewan, stations, of a similar character but of slightly more recent construction, are to be found.

At Wood Mountain and Big Muddy the accommodation is not so good, but, owing to the rapidity of railway construction and the possibility of consequent changes in the locations of these stations, I have deemed it advisable to wait a little before undertaking permanent construction.

In connection with each of the six stations last named, a certain area of land is reserved for quarantine purposes.

At Twin Lakes the quarantine reserve consists of section 12, township 1, range 25, west of the 4th meridian.

That portion of land in section 33, township 1, range 22, west of the 4th meridian, lying east of Milk river, is also held as a quarantine reserve, although not in present use.

The quarantine reservation at Coutts consists of those portions of townships 1 and 2, ranges 15 and 16, west of the 4th meridian, lying south of the Milk river, and east of the line of the Alberta Railway and Irrigation Company.

At Pendant d'Oreille I have recently succeeded in securing the reservation of sections 2, 3, 4, 5 and 6 in township 1, range 8, west of the 4th meridian.

At Willow Creek the original reservation comprised an imperfectly defined area lying at some distance from the International Boundary. This has now been exchanged for townships 1, in ranges 28 and 29, west of the 3rd meridian.

The reservation at Wood Mountain consists of townships 1, ranges 5 and 6, west of the 3rd meridian, while that of Big Muddy consists of townships 1, ranges 20 and 21, west of the 2nd meridian.

The greater part of the somewhat extensive reservation which formerly existed at Estevan was unfortunately released for homesteading purposes prior to the time of my taking office. I have, however, been able to effect an arrangement with the Interior Department whereby certain sections of township 1, range 8, lying west of the Souris river have been set aside for quarantine purposes.

There is at present no quarantine station at Estevan, but there being no other land available in the vicinity of North Portal, I deemed it wise to maintain this reserve, as it might be useful in case of emergency or in the event of it being found necessary to impose additional restrictions on animals imported from the United States. As these lands lie in close proximity to the Souris river they are admirably situated for the purpose for which they are being held.

At Marienthal the number of animals imported has not yet warranted the erection of any buildings, arrangements having been made with a private owner for the stabling of such animals as are held for test at that point.

At North Portal, the station which was constructed in 1904 having proved entirely inadequate to the demands of the large annual influx of settlers at that point, it was last year found necessary to greatly increase the accommodation. This new station at North Portal, erected on land leased from the Canadian Pacific Railway, is now the largest and most important on the international boundary, consisting as it does of five modern stables with accommodation for 200 horses, inspectors' office and waiting rooms for stock owners, as also large and commodious corrals. There is also a new double unloading platform accommodating forty stock cars, while adequate trackage facilities have been furnished by the company. One serious drawback to this station, viz., the lack of an adequate water supply, has recently been overcome by the sinking of an artesian well, which will prove of very great convenience to incoming settlers.

Proceeding eastward the next station reached is that of Bannerman, Man., where the Brandon, Saskatchewan and Hudson's Bay branch of the Great Northern Railway crosses the boundary. Here a modern stable with accommodation for 40 horses, together with suitable and convenient yards was erected in 1907, on land leased from the railway company.

At Snowflake a convenient stable suitable for the needs of the department is rented from a private owner.

At Gretna, where the Midland branch of the Great Northern Railway crosses the boundary, and where there is also a Canadian Pacific Railway connection, a stable with accommodation for 40 horses, as also suitable yards, was erected in 1907, on land leased from the Great Northern Railway Company, railway connection with both roads being provided.

At Emerson, Man., a new station was erected in 1904 on land purchased by the department in a convenient location to the Soo line of the Canadian Pacific Railway and the Canadian Northern Railway. As at North Portal, however, the large increase in importations of recent years has necessitated the construction of considerable additions. The present stables which were completed in 1909, provide accommodation for nearly 100 horses.

On the completion of this new station the buildings and land formerly held by the department, comprising the old barracks at Fort Dufferin, as also lots 31 and 33 in the parish of St. Agathe, were handed over to the Ordnance Lands Branch of the Department of the Interior.

At Rainy River and Fort Frances the department has as yet no station, such animals as are held for test being accommodated by a special arrangement in privately owned stables at that point.

At Port Arthur and Sault Ste. Marie the number of animals entering is very small and it has not yet been found necessary to provide special stabling facilities.

At Sarnia the lease of the property at Point Edward was cancelled in 1907; some of the old buildings were sold, while the material from the others was used in the construction of a small but modern station, on land leased from the Grand Trunk Railway in close proximity to the Tunnel Station.

At Windsor a small building was erected in 1905 on land leased from the Canadian Pacific Railway, but the accommodation at this point has, of recent years, been altogether inadequate, and it will be necessary in the immediate future to furnish better facilities for quarantine purposes.

At Bridgeburg a modern stable with accommodation for 14 horses was erected during the past year on land leased from the Grand Trunk Railway, and at Niagara Falls a careful survey has also been made of the situation with a view to the future construction of stable accommodation at that point.

The number of animals entering at the various points on the international boundary between Niagara Falls and St. Johns, Que., is in each case so small that it has not been deemed necessary to make special provision for their accommodation.

At St. Johns, Que., a station would have been erected ere now, but for the fact that considerable difficulty has been encountered in securing a suitable site on reasonable terms.

At Lennoxville, Que., a modern station was erected in 1907, on land leased from the Canadian Pacific Railway. This stable furnishes accommodation for animals arriving over the various railway lines centering at that point.

At McAdam Junction, N.B., a station is also required, but as at St. Johns, Que., considerable difficulty has been experienced in securing a suitable property on which to build.

At Yarmouth, Sydney, and Pictou, N.S., the demands have not, up to the present, been of such a nature as to render necessary the provision of special accommodation for live stock imported at these points.

At most of the stations on the international boundary the work of enforcing the regulations is performed by resident salaried veterinary inspectors, although in some few cases two or three of the smaller stations are looked after by one inspector who travels from point to point, on being notified by the Customs officials that his services are required.

At three points, namely, Osoyoos, B.C., Big Muddy, Sask., and Marienthal, Sask., the veterinary inspector is also sub-collector of Customs, his salary being paid proportionately by the two departments concerned.

Although only one inspector is stationed permanently at North Portal, Sask., and Emerson, Man., it is necessary during the rush season of immigration to detail additional officers in order to keep up with the work at these points.

Caretakers are employed in quarantine stations where their services are actually necessary, their salaries being fixed in accordance with the requirements in each case.

At many of the less important inspection stations the work of inspection is performed by resident veterinary practitioners who are paid, at a fixed rate, for the time actually spent by them in the discharge of their duties.

There are, however, some exceptions, as for instance, in the case of Highwater, Abercorn, St. Armand, Lacolle Junction, and Noyan Junction, small ports subsidiary to St. Johns, Que., which are looked after by the salaried veterinary inspector stationed at this latter quarantine port. On the New Brunswick frontier also, the following inspection ports are in charge of the salaried veterinary inspector whose headquarters are at McAdam Junction, N.B.:—St. Stephens, Woodstock, McAdam Junction, Edmunston, Grand Falls, St. Leonards, Debec Junction, Florenceville and Aroostook Junction.

At White Horse, Yukon Territory, a salaried veterinary inspector is stationed, whose duty it is to enforce the regulations in the case of animals imported via that port. This inspector works in conjunction with the officers of the Royal Northwest Mounted Police stationed there.

At Forty Mile on the Yukon river a small quarantine station is also maintained in charge of the Sergeant of the Forty Mile Detachment of the Royal Northwest Mounted Police.

From the above statement it will be seen that a marked improvement has been effected in the matter of quarantine facilities, both on the seaboard and along the international boundary. Although the chain is not yet complete the number of additional stations now actually required under the existing conditions is comparatively small, and their construction will entail but little further effort or expenditure.

QUARANTINE REGULATIONS.

From time to time, during the last nine years, important modifications have been made in the regulations governing the importation of animals.

Dealing first with importations from Europe, and from countries other than North America, the first important change was made in 1903, when the tuberculin testing of cattle in Europe was abandoned in favour of a policy of testing in our own quarantine stations, and permanently earmarking all animals found to react.

About the same time the obtaining of permits for the importation of all animals, with the exception of horses from the countries of Europe, was made compulsory. The advantages accruing from this plan are two-fold, inasmuch as the department is enabled to maintain a check on proposed importations from countries in which contagious disease is known to exist, while at the same time the inconvenience arising from a lack of accommodation for unexpected importations is entirely obviated. This permit system works very smoothly and satisfactorily, and it is to me a matter of some surprise that its advantages had not been previously recognized.

It has recently been rendered even more effective through an arrangement which I succeeded in making when in London in 1908, by which information furnished to the British Board of Agriculture regarding the existence of contagious disease among animals in the countries of continental Europe is transmitted to this office.

Following the eradication of pleuro-pneumonia in the United Kingdom, the period of quarantine on cattle originating there was reduced in 1903 from ninety to sixty days, a further reduction to thirty days being made in 1909, the last mentioned period dating from the arrival of animals at quarantine stations instead of, as formerly, from the date on which the ship cleared from a British port.

At the same time a slight change was made in the period of quarantine imposed on sheep and swine imported from the United Kingdom, which, instead of fifteen days from the date of landing, is now a definite thirty days, reckoned from the clearance of the ship.

In the case of animals imported via United States ports, provision has also been made, requiring in addition to the other certificates necessary the production of a health certificate signed by an inspector of the United States Bureau of Animal Industry.

A number of changes have also been effected in the regulations governing the importation of animals from the United States, Newfoundland and Mexico.

Taking the United States first, as being by far the most important, one of the earliest changes inaugurated was the setting apart in 1903 of certain definite customs ports as quarantine and inspection stations. Before this was done, importers were in the habit of presenting themselves at any customs port on the boundary and demanding inspection and quarantine facilities. As a result, the Canadian quarantine service was, to a large extent, ineffective and inoperative. So-called inspections were

being made by customs officers who had no knowledge whatever of animal diseases, but who, under the system then in vogue, were empowered to collect and retain inspection fees, a condition of affairs which naturally gave rise to very serious abuses, inasmuch as these officers, as well as many of the veterinary inspectors then employed, only received fees on animals actually imported and not on those which might be rejected. Under such conditions rejections were of course conspicuous by their absence.

A complete reformation has taken place in this respect, animals being now admitted only at certain prescribed ports, at all of which, as has already been shown, the services of fully qualified veterinary inspectors are available.

Payment by inspection fees has been entirely abolished, the inspectors being either salaried officials, or paid at a fixed rate, for the time actually occupied in the performance of their official duties.

The let-pass system, by which animals were permitted to cross the boundary and, especially in the west, to proceed for long distances through Canadian territory before reporting for the perfunctory inspection above mentioned, has been entirely abolished, as has also the custom of manifesting to interior points, by which inspection at the boundary was often avoided.

All animals are now inspected at the boundary ports except in some few cases where, owing to local conditions, this is practically impossible. In no case, however, are animals permitted to come in contact with Canadian stock until they have undergone inspection and, if necessary, quarantine.

Owing to the widespread existence of hog cholera in the United States and the great difference between the policy followed by the authorities of that country and that of this department, the restrictions on the importation of swine have been made much more stringent. Under the policy formerly pursued, swine forming part of settlers' effects were introduced practically without restrictions, while pure bred hogs imported for breeding purposes, were penalized by having to undergo a quarantine of fifteen days, in most cases under such circumstances as to render the precaution absolutely useless. Hogs were also permitted to enter in bond for the purpose of slaughter, under certain restrictions, which were, however, of but little value from a quarantine point of view.

Since 1904 all hogs for purposes other than immediate slaughter have been subjected to a period of thirty days quarantine, in addition to which they must be accompanied by the certificate of an inspector of the United States Bureau of Animal Industry to the effect that no hog cholera nor swine plague has existed within five miles of the premises on which they have been kept for a period of six months prior to shipment.

Since 1906 the special privileges accorded in the case of hogs imported for slaughter have also been abrogated.

Since 1907 stringent restrictions have been placed on the importation of horses, which must now be submitted to the mallein test before being permitted to enter Canada. Arrangements have been made with the United States authorities whereby mallein test certificates bearing the signatures of certain United States federal inspectors are recognized. Animals unaccompanied by these certificates are held at the boundary port and tested by the officers of this department.

As an additional safeguard, the importation of unbroken horses is absolutely prohibited, as it is impossible to satisfactorily inspect or submit to the mallein test unbroken range horses of which large numbers were previously driven across the frontier, in many cases giving rise to serious outbreaks of disease among Canadian stock.

A somewhat similar regulation is maintained in the case of cattle imported for breeding purposes and milk production, and although this latter policy is not entirely new, it has been systematized and made much more effective through the furnishing to this department by the authorities at Washington of a list of the special officers

of the United States Bureau of Animal Industry authorized to sign tuberculin as well as mallein test charts.

The enforcement of the quarantine regulations has been greatly simplified by the insertion of a provision requiring all importers of animals to furnish to the customs collectors at the port of entry a declaration setting forth clearly the purpose for which the importation is made.

Much time and labour have been expended in the special training of inspectors for the quarantine service, and in the establishment of a system by which, through the adoption of proper forms and books of record, it has been made possible to maintain a close check upon their work. This system, by which these officers regularly furnish reports countersigned by the customs collector, or sub-collector of the port at which they are stationed, giving full particulars in regard to all animals presented for entry, the amount of fees collected, and other necessary information, is found to work very satisfactorily, constituting as it does, a decided improvement upon the methods previously in use.

I feel it my duty to here pay a well-deserved tribute to Dr. A. D. Melvin, Chief of the Bureau of Animal Industry of the United States, and the other officials of that excellent organization, who have at all times shown a most gratifying willingness to assist this department in the proper and effective enforcement of its regulations.

NEWFOUNDLAND.

Beyond a close inspection at the port of entry no special restrictions are imposed on animals imported from Newfoundland. The live stock brought into Canada from that colony consists almost entirely of ponies for use in the coal mines of Nova Scotia, and, so far as our experience indicates, these appear to be remarkably free from disease.

MEXICO.

During the first few years of my service, importations of live stock from Mexico assumed large proportions and although these have recently become much less important, it is still necessary to exercise considerable caution in dealing with them, inasmuch as the veterinary sanitary arrangements of that country are of the most rudimentary character.

Under the present regulations, it is necessary for any person contemplating the importation of animals from Mexico, to apply to the Minister for a permit and, in making such application, to give full information regarding the number of animals to be imported, and their place of origin, as well as the time and place at which they will be presented for entry.

All such animals are subject to a rigid inspection, the requirements in their case being practically the same as in the case of animals imported from the United States, except that owing to the lack of any reliable official organization in the southern republic, no provision is made for the recognition of veterinary certificates.

Mexican animals, passing in bond through United States territory for importation to Canada, must also be accompanied by a certificate of health signed by a veterinary inspector of the United States Bureau of Animal Industry, and by an affidavit proving identity, but the presentation of such certificate does not in any way interfere with their rejection if the results of the inspection at the boundary are not entirely satisfactory.

TRANSIT TRADE.

The railways traversing the western peninsula of Ontario, furnishing as they do the shortest and most convenient means of transportation between points lying west

of the Detroit and St. Clair rivers and the Buffalo market, as well as the seaports on the Atlantic coast, are largely used for the conveyance of live stock originating in the United States.

In regard to animals other than swine this transit trade is, under present conditions, of comparatively slight importance from a sanitary point of view. Owing, however, to the widespread prevalence of hog cholera in the United States, and particularly in the middle west, it is imperative that the passage of swine through Canadian territory should be safeguarded in every possible way.

Evidence, which during the years immediately following my appointment, I was able to secure regarding the outbreaks of hog cholera, which were frequent, not only in the counties of Essex and Kent, but in other districts traversed by the railways above mentioned, was of such a nature as to convince me that this trade, as then conducted, was a source of constant and very serious danger to the hog raising industry of the Dominion. After thoroughly investigating the whole subject I felt it my duty in 1904 to insist on the inauguration of a much more thorough and systematic inspection of all stock cars entering Canada at Windsor and Sarnia. At the same time, new regulations governing the transit of United States hogs through Canadian territory were adopted and strictly enforced. These regulations which have, from time to time, been amended as the case demanded, will be found in Appendix No. XVII. as Ministerial Order No. 33.

This question is also discussed in that portion of this report which has special reference to hog cholera, but it may be here stated that the present conditions, as regards the existence of this disease in the territory traversed by the railways engaged in this trade, are such as to constitute an ample justification for the adoption of these regulations.

OTHER CHANGES.

The regulations governing the management of quarantine stations have undergone many important amendments, as have also those affecting the exportation of live stock to Europe, as well as to the United States. But as all the Quarantine Regulations and Ministerial Orders bearing upon them are printed as Appendix No. XVII. to this report, it is scarcely necessary to make further reference to them.

I think it right, however, to call special attention to sections 83 to 87 inclusive, as also to Ministerial Order No. 37, providing for the inspection and disinfection of stock yards, stables, or other premises, as also of the stock cars or other vehicles used for the conveyance of live stock, the strict enforcement of which has proved highly beneficial, from a sanitary point of view, and while thus safeguarding the interests of the live stock shippers, has also largely added to the comfort of the animals themselves. Further details regarding this phase of the work will be found elsewhere in this report.

I cannot leave this subject without expressing my keen appreciation of the friendly and helpful attitude of the Commissioner of Customs, and the various other officers of that Department, without whose co-operation it would have been impossible to bring about the reforms outlined above.

SANITARY SERVICE.

Although at the time of my assuming office I was, owing to my previous associations, professional and otherwise, fairly familiar with the general requirements of an effective veterinary sanitary service, I had but little personal knowledge of the detailed methods actually followed by the officers of your department in carrying out the provisions of the Animal Contagious Diseases Act. It was therefore necessary for me to examine carefully into these methods and to study the departmental machinery employed in this work.

It soon became apparent that if an earnest, systematic effort were to be made in the direction of securing control of the various animal plagues existing in Canada, it would be necessary to adopt new methods and to establish and organize a system more in accordance with modern ideas and the needs of the country.

I found that you entirely agreed with me in this view and that you were ready and willing to afford me every opportunity of remedying the then existing defects and establishing the work on a sound and effective basis. As a means to this end, you conferred upon me a measure of active, executive control which had previously been vested in the deputy minister, who, as a matter of practice, acted on his own initiative in matters pertaining to the control of contagious disease, although supposed to follow generally the advice of the chief veterinary inspector, whose services were also called into requisition in the event of any specially serious outbreak of disease, or other occurrence of more than ordinary importance.

The situation having been thus simplified, my next step was to study carefully the Animal Contagious Diseases Act and the departmental records relating to its enforcement, with the view of ascertaining, firstly:—whether the powers conferred by the measure in question were adequate and, secondly:—what machinery, if any, existed for their application.

The results of these studies were, in both instances exceedingly disappointing: I found that not only was the Act defective in many respects, more or less important, but that much of the work carried on under its provisions had been, to say the least, irregular and unsystematic.

Steps were taken at the earliest possible moment to remedy these conditions. During the parliamentary session of 1902-3 you were good enough to introduce a Bill amending the Animal Contagious Diseases Act in such a way as to render its operation much more easy and practical than had formerly been the case. Regulations providing for the effective control of many diseases, regarding which these had hitherto been lacking, were also carefully drafted and put in operation. Forms of many different kinds, for use by inspectors in carrying out the requirements of the Act and the regulations, were also prepared and put into actual use.

Irregularities with regard to the appointment and qualifications of inspectors, which had apparently existed from the beginning, were removed or remedied. The status of all inspectors legally appointed under the Animal Contagious Diseases Act was clearly defined, while, at the same time, hundreds of veterinary practitioners, who, on the strength of having been empowered to issue special health certificates, had been under the impression that they were veterinary inspectors, were notified that they had no authority to act in that capacity.

The old practice of employing local veterinary practitioners in the work of inspection was gradually discontinued, my experience in Manitoba and elsewhere having been such as to convince me that as a rule men of this class, in view of their connections in practice and otherwise, did not perform effective control work. Every effort was made to induce inspectors to study carefully the diseases with which they had to deal, as also the Act and the regulations, so that their work might be not only intelligent and effective, but strictly in accordance with the law.

Much effort was also expended in demonstrating to transportation companies, as well as to the general public, who, in view of previous irregularities in the service of quarantine declarations, and otherwise, had become more or less indifferent to official action, that it was now to their interest to pay due regard to any notices which might be served upon them, as well as to any orders emanating from the Department with reference to the movement of live stock or other matters pertaining to the control of contagious disease.

As it was evident from the beginning that the number of salaried inspectors in the employ of the Department was entirely inadequate for the proper performance of

even the more insistent duties devolving upon them, additions to the staff were made from time to time, as occasion arose.

As these officers were required to furnish detailed reports of all the work performed by them it became necessary to establish a set of office records which in turn led to a gradual increase in the clerical staff, of the now fairly well established Health of Animals Branch. This progress has been gradual but continuous until, at the present time, instead of the sixteen salaried veterinary inspectors employed in 1902, the Branch has now in its field and quarantine sections of the Contagious Diseases Division, exclusive of those employed in the Meat Inspection Division, 92 salaried veterinary inspectors, 40 veterinary inspectors paid for actual work performed, as also 45 lay inspectors.

Since 1907, when the meat inspection service was established, all applicants for appointment to the veterinary inspection service, in either Division of the Branch, have been required to undergo a special qualifying examination, so as to admit of the free interchange of officers of this class.

It is scarcely possible to over-estimate the value to the Department and the country, of this corps of highly trained and efficient veterinary and other inspectors, who in the event of any serious outbreak of disease, would be not only ready, but able to deal with it in a thorough and effective manner.

HOG CHOLERA.

The success which has during recent years attended the systematic enforcement, by the officers of this Branch, of the policy of prompt slaughter of all affected and contact hogs, and the thorough cleansing and disinfection of the premises on which outbreaks have taken place, indicates that this is the proper method of dealing with this disease as it occurs in Canada.

It is perhaps doubtful whether such a policy would be found practicable in the United States, or in other countries where the climatic and other conditions favour the continued existence and development of the disease. There can, however, I think, be no question that if properly and effectively carried out, it is admirably suited for the requirements of this country where the disease does not appear to be indigenous and where the severity of the winters largely assists in preventing the perpetuation, as well as the spread of infection.

The soundness of this view is substantiated by the history of the very considerable area in the counties of Essex and Kent in Ontario, where the disease existed for many years, as evidenced by the following quotation from the annual report for 1895-96 of Dr. McEachran, then chief veterinary inspector:—

'By reference to the report of hog cholera in the counties of Essex and Kent, Ontario, it is to be regretted that this disease has been allowed to exist for a number of years and spread over a considerable area of country, the full extent of which cannot be said to have been ascertained.'

* * * *

'Unfortunately eleven years ago swine plague was by some undetermined means, introduced to the county of Essex, Ontario, when one hundred and forty-three farms were declared infected. It also appeared in the county of Kent in 1889, and has been allowed to continue to exist and break out periodically ever since.'

In his report for 1897, Dr. McEachran further states:—'The disease known in Britain as swine fever, and in America as hog cholera and swine plague, has continued during the past year to appear here and there in the counties of Essex and Kent, and during the year 3,395 pigs, young and old, were slaughtered under quarantine regulations as diseased and in contact with. The sum of $10,119.83 was paid in indemnity.'

In view of the conditions described by Dr. McEachran, the following statistics showing approximately the number of outbreaks and the amount paid in compensation in the old infected area in the counties of Essex and Kent from the year 1902 to date, form interesting reading:—

ESSEX AND KENT.

Year.	Outbreaks.	Animals destroyed.	Compensation.
1902-03	302	8,396	$21,926.97
1903-04	106	2,274	6,453.32
1904-05	39	930	3,932.24
1905-06 Oct. 31, 1905, to Mar. 31, 1906	2	27	215.33
1906-07	6	105	649.31
1907-08	27	425	2,365.58
1908-09	3	134	633.32
1909-10	0	.....	.....
1910-11	8	108	$585.98

These figures are even more striking in view of the fact that the rate of compensation paid for the great majority of the hogs slaughtered during the years 1902, 1903 and 1904 was at the rate of only one-third of the value, while since September, 1904, two-thirds of the value has been paid. The disease has now been practically stamped out in the original infected area, to which most of the outbreaks, which took place elsewhere in eastern Canada, were directly traceable. Except in a very few cases where infection was due either to the transit trade across western Ontario, or to the illegal introduction of American swine, the outbreaks dealt with in recent years have been among the hogs kept in suburban districts and fed on uncooked city garbage. The frequency with which the disease makes its appearance among garbage-fed swine, not only in this country, but in the United States as well as in Europe, has led to the adoption of the belief among veterinary sanitarians that these animals become infected through the ingestion of raw pork, or pork products, imported from countries in which the disease prevails.

As will be seen from a reference to the report of the pathologist, which is printed as an appendix hereto, considerable effort has been expended in the endeavour to secure more reliable information on this point than is now available. As the virus of hog cholera is, however, ultra-microscopic, it is a matter of extreme difficulty to obtain satisfactory proof of the correctness of the theory.

In the subjoined statistics for the past year it will be noted that by far the greater number of outbreaks took place in Alberta and British Columbia, and that it was necessary to destroy in the province of Ontario only one hundred and eight hogs for which the amount of compensation paid was $585.95.

ONTARIO.

Eight outbreaks of hog cholera occurred in Ontario, in which 108 hogs, valued at $879, were destroyed in the undermentioned counties, at a cost of $585.98 in compensation.

Fourteen premises were also quarantined on suspicion, involving the control of 310 hogs.

County.	No. of Outbreaks.	Hogs destroyed.
Essex	7	104
Kent	1	4
Total	8	108

In Quebec two premises were quarantined on suspicion, and subsequently released.

BRITISH COLUMBIA.

Seventeen outbreaks occurred, in which 588 hogs, valued at $6,765, were destroyed, involving an expenditure of $4,509.94 in compensation.

Four premises were also quarantined on suspicion, 34 hogs being involved.

ALBERTA.

Thirty-one outbreaks occurred, in which 650 hogs, valued at $5,584.50 were destroyed, involving an expenditure of $3,722.95 in compensation.

Twenty-five premises were also quarantined on suspicion, 327 hogs being involved.

In the Dominion, therefore, 1,346 hogs were destroyed as diseased, at a cost of $8,818.87 in compensation.

TUBERCULOSIS.

The policy regarding tuberculosis, which, on my recommendation, was adopted by the Department in 1902, remains as yet, practically unchanged.

This apparent inertia is explained by the fact that during the first decade following the adoption of tuberculin as a diagnostic agent in bovine tuberculosis, the action taken by veterinary sanitarians in many countries was of so crude and ill-considered a nature as to justly create a very strong prejudice against the test among stock owners, especially those owning valuable animals of the various pure breeds. To such an extent was this feeling of resentment manifest, that, in not a few communities, all attempts to deal intelligently with the disease were perforce abandoned, with the result that conditions became actually worse than at any previous time.

Being familiar with these facts, and fully aware of the antagonistic attitude which many Canadian breeders had felt themselves compelled to assume, I did not deem it wise to run the risk of increasing the already existing irritation by the adoption of an aggressive policy.

Being convinced that a policy, with education and moral suasion as prominent features, would be productive of better results than would less considerate and more drastic measures, I have been content to wait until the stock-owning public, having regained the equilibrium lost as a result of the ill-considered legislation above referred to, should ask for governmental assistance in the task of freeing its herds from this loathsome and dangerous malady.

The trend of public opinion in all civilized countries is now strongly in this direction, and it would seem as if the time were ripe for the inauguration of a definite and comprehensive policy for the control and eradication of bovine tuberculosis. Such a policy has been formulated by the International Commission on Bovine Tuberculosis, which, created by the American Veterinary Medical Association at its annual meeting held in Chicago in 1909, has gone very fully into the whole question, its findings being embodied in a comprehensive report issued during the past winter, a copy of which is printed herewith as Appendix No. XXIII.

This Commission, of which I have the honour to be Chairman, is composed of fourteen members, comprising representatives of the stock-breeding, dairying and packing industries, as well as medical officers of health, pathologists and veterinarians both scientific and practical. The necessary expenses have been defrayed not only by the parent Association, but by the governments of Canada and the United States, as also the various state and provincial governments, and other bodies interested in the subject.

The report of this Commission, originally published by the American Veterinary Medical Association, has, with your approval, been reissued as a departmental publication. Large editions have been distributed by the Department of Agriculture at Washington, as well as by several state departments and other bodies. It has also been issued in pamphlet form by the British Columbia Department of Agriculture, and has been freely reprinted in Europe, having been translated into several foreign languages. This report has been exceedingly well received, not only by veterinary sanitarians and others interested in the question from an official point of view, but by breeders of pure-bred animals and the stock-owning public generally.

I understand that it is your intention to adopt in the near future a policy either identical with or closely following the lines of that recommended by the Commission. The wide distribution of the report by your Department has unquestionably paved the way for such action, and I feel satisfied that official measures, if reasonable and considerate, will receive the hearty support of the intelligent stock owners of the Dominion.

The following are the statistics regarding tuberculosis for the twelve months ending March 31, 1911:—

397 cattle were tested on being imported into Canada, 24 of which reacted, 7 were classed as suspicious and 366 proved healthy.

527 cattle were tested for export, 32 of which reacted and 493 successfully withstood the test, 2 being classed as suspicious.

728 cattle were tested for other reasons by officers of the Department of which 107 reacted, 18 were classed as suspicious and 603 successfully withstood the test.

2,420 cattle were tested by private practitioners with tuberculin supplied by this Department, 510 of which reacted, 60 were classed as suspicious and 1,850 proved to be healthy.

With regard to this general testing it must be borne in mind that in many cases the existence of tuberculosis is suspected in a herd before tuberculin is applied for, and the proportion of reactors cannot be cited as that obtained from indiscriminate testing.

All reactors were permanently earmarked by a veterinary inspector in cases where the owner did not voluntarily destroy them.

Four cattle were refused admission from the United States at Bannerman, Man., being affected with tuberculosis, and six at North Portal, Sask.

GLANDERS.

Although outbreaks of glanders had occasionally received attention, the department had no definite policy regarding this disease until after my appointment in 1902.

Glanders had, however, existed for many years, to a more or less serious extent in every province of the Dominion, with the exception of New Brunswick, Nova Scotia and Prince Edward Island, where, so far as the records indicate, it was unknown. The statistics of the provincial government of Manitoba show that its ravages in that province had been very serious, while it had also for many years, caused heavy losses to the horse owners of the Northwest Territories.

While serving as veterinary surgeon to the Northwest Field Force in 1885, I found many cases among horses owned by settlers, as well as among those furnishing transport for the troops, and at the special request of the Minister of Agriculture for Manitoba, of which province I was then an inspector, I prepared a special report on the subject, which was duly forwarded to Ottawa, and may still be seen on file in your Department. As above stated, however, no attempt was made to deal seriously with the disease except in Manitoba, where the provincial authorities, who had in 1884 established a fairly effective veterinary sanitary service, followed the practice of slaughtering such clinical cases as were brought to their notice. No compensation in these cases was paid by the provincial department, although municipal authorities were empowered to devote money to this purpose if they saw fit to do so.

The government of the Northwest Territories also dealt for some years with the disease but in a perfunctory and ineffective manner.

At the time of my taking office, the control of glanders, as well as of all other contagious diseases in the Northwest Territories, had been entrusted by you to the Commissioner of the Royal Northwest Mounted Police. The veterinary staff at his disposal was, however, in view of the enormous area to be covered, and the widespread prevalence of glanders, mange, and other contagious diseases of live stock, entirely too small to provide an effective service.

As indicated in that portion of this report which deals with the gradual growth of our official staff, this state of affairs was not long permitted to continue.

As a natural result of the inadequacy of the veterinary staff above mentioned, there existed but little check on the spread of contagious diseases, and among these glanders especially, was becoming yearly more prevalent.

I, therefore, felt it my duty to recommend the adoption of a systematic and definite policy for the control and eradication of this disease, and in August, 1902, with your approval, active operations were commenced. During the two years following, or until September, 1904, all clinical cases of glanders were destroyed without compensation; non-clinical cases which reacted to mallein were detained under quarantine for a retest, it being then held by the leading veterinarians throughout the world that such animals as ceased to react to repeated injections of mallein had become permanently cured. It was not long, however, before the fallacy of this theory became apparent, as many of these so-called 'ceased reactors' were proved to be capable of transmitting glanders to other horses, although, as a matter of fact, they seldom themselves developed acute symptoms.

In 1904, therefore, with your approval, a change was made to the infinitely more effective and satisfactory policy of slaughtering all reactors and paying a reasonable compensation to their owners. During the first six months after the inauguration of this policy, compensation was not paid for such animals as showed clinical symptoms, nor was the policy enforced in Manitoba where the provincial government still continued to deal with the disease. In March, 1905, both of these limitations were removed and, since that time, compensation has been paid in Manitoba, as elsewhere, for all horses slaughtered, whether showing clinical symptoms or not, the only exceptions being in those cases where fraudulent intent on the part of owners has been shown, or where the animals have been in the country for a period of less than six months.

For the period between April 1, 1905, and March 31, 1906, this being the first twelve months during which the present policy was in operation, without the limitations above referred to, the figures are as follows:—

No. of Horses destroyed.	Value.	Compensation.
	$ cts.	$ cts.
3,037	345,891 50	230,599 95

The following comparative statement gives the actual figures for each fiscal year, the apparent difference for the first twelve months having been already explained.

Year.	Horses killed.	Compensation paid.
1904-05	2,113	$147,851 43
1905-06 (5 months)	1,387	108,045 76
1906-07	1,881	142,057 07
1907-08	1,324	102,868 65
1908-09	981	73,386 88
1909-10	627	48,686 01
1910-11	666	57,122 11

As will be seen there is an increase of $8,436.10 for the fiscal year just passed. Reference to the detailed statistics will, however, show that this increase is confined entirely to the province of Saskatchewan, where, owing to reasons already given, the difficulties encountered, in dealing with this disease, have been greater than in any other part of the Dominion. It will further be seen, however, that even in Saskatchewan the figures show a marked diminution in the prevalence of the disease since the adoption of the present policy.

The increase shown in the number of cases disposed of during the year is, nevertheless, encouraging, showing, as it does, that the channels of contact are being more closely followed and the outbreaks effectively dealt with. This improvement is attributable to changes in, and augmentations to the staff, which has greatly improved the efficiency of our local organization in that province.

DOMINION.

666 Horses: 13 killed on inspection, 571 killed on first test, 69 killed on second test, 13 killed on third test; valued at $85,684; at a cost of $57,122.11; 265 showed clinical symptoms.

28,599 horses were tested with mallein, of which 653 reacted and were destroyed. Of the reactors 252 showed clinical symptoms of Glanders at or during the test. 480 horses are under control for retest.

Of the above, 15 horses slaughtered were killed without compensation as being diseased when imported into Canada.

NEW BRUNSWICK.

One horse, valued at $150 was killed at St. Basil, showing no clinical symptoms at the second test, at a cost in compensation of $100.

114 horses were tested and proved to be healthy.

NOVA SCOTIA.

25 horses were tested and proved to be healthy.

PRINCE EDWARD ISLAND.

2 horses were tested and proved to be healthy.

QUEBEC.

17 { 2 killed on inspection / 14 " 1st test / 1 " 2nd test. } Valued at $2,175, at a cost of $1,449.98.

Thirteen showed clinical symptoms.

Five hundred and twenty-seven horses were tested with mallein of which 15 reacted and were destroyed. Of the 15 reactors, 13 showed clinical symptoms of Glanders at or during the test.

No horses are under control for retest.

Of the 17 horses slaughtered—

17 { 4 were in the electoral district of Shefford. / 2 " " " " Montreal. / 1 " " " " Bagot. / 5 " " " " Beauce / 1 " " " " St. Maurice. / 1 " " " " St. Johns and Iberville. / 1 " " " " Richelieu. / 1 " " " " Quebec. / 1 " " " " Chicoutimi and Saguenay.

ONTARIO.

34 { 4 killed on inspection / 28 " 1st test / 2 " 2nd test. } Valued at $4,565, at a cost of $3,043.30.

Twenty showed clinical symptoms of Glanders.

Nine hundred and eighty-seven horses were tested with mallein, of which 30 reacted and were destroyed. Of the 30 reactors 16 showed clinical symptoms of Glanders at or during the test. Two horses are under control for retest.

Of the 34 horses slaughtered—

34 { 11 were in the electoral district of Hastings E. / 1 " " " " Hastings W. / 5 " " " " Algoma E. / 1 " " " " Prescott. / 3 " " " " Peterboro E. / 3 " " " " Renfrew N. / 1 " " " " Halton. / 9 " " " " Nipissing.

MANITOBA.

19 { 3 killed on inspection / 15 " 1st test / 1 " 2nd test. } Valued at $2,305, at a cost of $1,536.66.

Eleven showed clinical symptoms of Glanders.

Five thousand and sixteen horses were tested with mallein, of which 16 reacted and were destroyed. Of the 16 reactors 8 showed clinical symptoms of Glanders at or during the test.

Ten horses are under control for test and retest.

Of the 19 horses slaughtered—

19	3	were in the electoral district of	Dauphin.
	11	" " "	Marquette.
	2	" " "	Souris.
	3	" " "	Provencher.

SASKATCHEWAN.

552	3	killed on inspection.	Valued at $70,716, at a cost of $47,143.51.
	476	" 1st test.	
	60	" 2nd test.	
	13	" 3rd test.	

One hundred and ninety-nine showed clinical symptoms of glanders.

Fourteen thousand one hundred and fifty were tested with mallein, of which 549 reacted and were destroyed. Of the 549 reactors, 196 showed clinical symptoms of glanders at or during the test

Four hundred and ten horses are under control for test and retest.

Of the 552 horses slaughtered—

552	27	were in the electoral district of	Saltcoats.
	127	" "	Regina.
	36	" "	Battleford.
	19	" "	Assiniboia.
	42	" "	Mackenzie.
	228	" "	Moosejaw.
	27	" "	Qu'Appelle.
	11	" "	Humboldt.
	16	" "	Prince Albert.
	19	" "	Saskatchewan.

ALBERTA.

42	1	killed on inspection.	Valued at $5,773, at a cost of $3,848.66.
	37	" 1st test.	
	4	" 2nd test.	

Twenty-one showed clinical symptoms of glanders.

Five thousand six hundred and ninety-five horses were tested with mallein, of which 41 reacted and were destroyed. Of the 41 reactors, 20 showed clinical symptoms of glanders at or during the test.

Fifty-eight horses are under control for test and retest.

Of the 42 horses slaughtered—

42	18	were in the electoral district of	Medicine Hat.
	8	" "	Strathcona.
	8	" "	Red Deer.
	1	" "	Macleod.
	7	" "	Calgary.

BRITISH COLUMBIA.

One horse was killed on first test, showing clinical symptoms of glanders. No compensation was paid, it being imported from the United States.

No horses are under control for retest.

Two thousand and seventy-nine horses were tested with mallein and found healthy.

YUKON.

Two horses were tested and found healthy.

NUMBER OF HEALTHY HORSES TESTED.

(Includes import tests.)

	1st test.	2nd test.	3rd test.	4th test.
Prince Edward Island	2			
Nova Scotia	25			
New Brunswick	111	3		
Quebec	470	42		
Ontario	928	27		
Manitoba	4,827	146	17	
Saskatchewan	11,111	1,885	182	13
Alberta	5,286	304	5	1
British Columbia	2,064	15		
Yukon	2			
Total	24,826	2,422	204	14

IMPORT TESTING.

Sixteen thousand, one hundred and eighty-two horses were tested on arrival from the United States and allowed to proceed to their destinations.

Entered at.	Number.
Charlottetown, P. E. I.	2
Halifax, N. S.	14
Yarmouth	4
St. John, N. B.	7
St. Stephens	1
McAdam Junction	22
Dehec Junction	4
Woodstock	16
Aroostook Junction	32
Grand Falls	15
St. Leonards	4
Edmunston	5
Comins Mills, Que.	8
Lake Megantic	63
Coaticooke	8
Bebee Junction	37
Sherbrooke	80
Highwater	25
Abercorn	12
St. Armand	19
Noyan Junction	1
Lacolle Junction	22
St. Johns	41
Athelstan	28

Entered at	Number.
Dundee	14
St Agnes de Dundee	2
Cornwall, Ont.	5
Prescott	29
Kingston	16
Morrisburg	5
Brockville	4
Niagara Falls	35
Bridgeburg	81
Windsor	189
Sarnia	59
Sault Ste. Marie	9
Port Arthur	2
Rainy River	28
Fort Frances	341
Ontario general	2
Emerson, Man.	3,070
Gretna	1,116
Bannerman	331
Snowflake	304
North Portal, Sask.	5,618
Marienthal	351
Wood Mountain	295
Big Muddy	213
Willow Creek	339
Pendant d'Oreille, Alta.	75
Coutts	673
Twin Lakes	453
Alberta general	3
Gateway, B.C.	111
Kingsgate	831
Nelson	69
Rykerts	29
Rossland	13
Grand Forks	101
Midway	95
Myncaster	16
Bridesville	54
Keremeos	92
Osoyoos	307
Huntingdon	131
New Westminster	7
White Rock	62
Vancouver	36
Victoria	86
Nanaimo	8
White Horse, Y.T.	2
Total	16,182

SESSIONAL PAPER No. 15c

DISEASED IMPORTS, 1910-11.

Port.	Number of Horses in Infected Shipment.	Number of Shipments.	Number of Horses Diseased.	Country of Origin.	Action.
McAdam Jct., N.B.	2	2	2	U.S.	1 returned, 1 destroyed by owner.
Bridgeburg, Ont.	1	1	1	"	Returned.
Emerson, Man.	56	9	24	"	Returned.
Gretna	19	5	6	"	Returned.
Bannerman	72	14	13	"	1 destroyed, 12 returned.
North Portal, Sask.	822	158	180	"	5 destroyed, 175 returned.
Wood Mountain	32	6	5	"	2 destroyed, 3 returned.
Marienthal	35	9	11	"	Returned.
Big Muddy	34	10	9	"	Returned.
Willow Creek	45	9	8	"	1 destroyed, 7 returned.
Sask., General	16	1	1	"	Destroyed.
Pendant d'Oreille, Alta.	4	1	1	"	Returned.
Coutts	13	2	3	"	Returned.
Twin Lakes	3	1	1	"	Returned.
Gateway, B.C.	6	1	1	"	Returned.
Midway	8	1	2	"	Returned.
Osoyoos	12	2	4	"	Returned.
Huntingdon	7	1	6	"	Returned.
Victoria	3	1	1	"	Returned.
Total	1,190	234	279		

The rapid diminution of the prevalence of glanders, as shown by these figures, is very gratifying. It will be noted that with the sole exception of Saskatchewan, in which province, as has already been stated, owing to its progress having for many years remained comparatively unchecked, the disease had obtained an exceedingly firm foothold, and where also the large area to be dealt with, the rapid extension of settlement and the consequent heavy importation of horses from the United States have rendered the work of eradication very difficult, the disease may now be said to be under control throughout the Dominion.

In this connection I would like to direct your special attention to the report of Dr. C. D. McGilvray, the inspector in charge of the work of this branch in Manitoba, published herewith as Appendix No. IV. The statements made by Dr. McGilvray, and especially the illustrative chart and the accompanying maps showing the effective manner in which glanders has been brought under control in that province, furnish incontestable proof, not only of the soundness of our present policy in regard to glanders, but of the practical value and reliability of the mallein test in the hands of an intelligent and earnest officer.

Although Canada was the first country to adopt this method of eradicating glanders, her example has since been followed by the British Board of Agriculture, as well as by the authorities in South Africa, and although scarcely to so full an extent, by several of the United States.

That our present policy is a sound and beneficial one has been proved beyond question. Our observations indicate that the so-called 'ceased reactor' is almost invariably a centre of infection and a source of great danger to any horses with which he may come in contact. It has been found that although a horse may cease to react to injections of mallein repeated at intervals of from 40 to 60 days, he will often, if not tested for a period of ten or twelve months, again react, and that the post mortem examinations in such cases invariably indicate the presence of glanders lesions, frequently of such a nature and so situated as to render the animal highly infectious.

It is worthy of note that in every case in which horses reacting once, have again reacted to a test applied after an interval of nine months or more, the officers of the department have been able to demonstrate the presence of glanders lesions more or less serious in character.

The records of these tests, which have been carefully preserved, and which are now on file in your department, constitute, when studied in conjunction with the gratifying annual reduction in the prevalence of glanders, as shown by the statistics, a remarkable proof of the efficacy and reliability of mallein as a diagnostic agent. While some of the newer and more delicate scientific tests may be quite dependable, they do not compare in point of suitability for field work, with the mallein test, the application of which is simple in the extreme and which in the hands of a reasonably careful and experienced veterinarian is undoubtedly sufficiently accurate for all practical purposes. It may of course be sometimes necessary to hold for retest, animals in which the reaction obtained is in any way doubtful, but this limitation applies to the agglutination and precipitation tests to at least as great a degree as when mallein is used.

MANGE IN CATTLE.

The efforts made by the branch to secure the control and, if possible, the eradication of this troublesome malady, although, I regret to say, not yet altogether successful, have brought about a very marked improvement in the state of affairs within the infected area in Southern Alberta and Southwestern Saskatchewan.

Prior to 1902 no real attempt was made to deal with the disease which, introduced from the United States some ten years previous, had gradually been extending its ravages until it had spread over practically the whole range country.

Two dipping vats had been erected, one in the vicinity of Medicine Hat and the other near Lethbridge, but owing to their limited capacity and the long distances over which cattle had to be driven for treatment, their use had been altogether abandoned and they had been allowed to fall into disrepair.

In 1902 at a meeting of the Western Stock Growers' Association held at Macleod, Alta., I felt it my duty to point out to the cattle owners there assembled that it would be necessary to adopt energetic measures, as, otherwise, their interests would suffer to a very serious extent. The ranchers appeared to realize the gravity of the situation and undertook to see that the disease was promptly and effectively dealt with in their respective neighbourhoods.

In the winter of 1903-4 it became apparent that the disease was not only unchecked, but still spreading very widely and affecting a great number of animals. After carefully studying the situation I decided to hold a series of meetings at the principal towns in Southern Alberta for the purpose of discussing the whole matter with the ranchers and, if possible, arousing their interest to such a point as would induce them to co-operate with the branch in an energetic effort to remedy existing conditions.

These meetings were very successful, being largely attended by the principal ranchers as well as by many smaller owners of cattle. At every meeting an expression of opinion was asked as to the advisability of inaugurating a policy of compulsory dipping covering the whole area in which the disease was known to exist, and in every case the project was enthusiastically endorsed.

An Order was therefore passed providing for the compulsory treatment between September 1, and October 31, 1904, of all cattle within the infected area, whether actually showing signs of disease or not. The territory to be dealt with was divided into thirteen districts, each of which was placed under the direct charge of a qualified veterinary inspector who was furnished with such assistants as were deemed necessary to enable him to effectively perform his duties.

In the case of small herds, hand treatment with a specified preparation was authorized, but by the terms of the order, all large herds were required to be dipped twice in lime and sulphur dip, which had been found more effective than any other remedy, not only in the United States, but in Australia and South Africa. This necessitated the construction of a large number of vats, and of these 196 were, in the month of September, 1904, finished and ready for use. With the exception of four constructed by the Department at boundary ports, all these vats were built and equipped either by individual owners or by associations formed for the purpose. During that season 411,061 cattle were dipped; the following year 547,705 were submitted to treatment, of these 422,805 being dipped a second time.

The enforcement of these dipping orders of 1904 and 1905 was so effective in reducing the prevalence of the disease, that at the annual meeting of the Western Stock Growers' Association, held at Macleod in May, 1906, a strongly worded resolution was passed declaring that, in the opinion of those present, it was unnecessary to any longer continue the policy of compulsory treatment. This resolution was contrary to my own views, but circumstances rendered my attendance at the meeting impossible, and as it would have been practically useless to attempt to enforce a compulsory dipping order against the wishes and without the active co-operation of the large owners who had thus declared against it, it was decided to forego, for one season, any active measures beyond the quarantining and treatment of all herds in which the disease was found to exist.

This policy appeared for a time to be attended with a reasonable measure of success, but shortly after the onset of winter it became evident that a considerable number of untreated herds were affected. As the weather had become too cold for treatment, these herds were placed under quarantine, a policy by which, under ordinary, usual climatic conditions, it might have been possible to restrict the spread of the disease. The winter, which set in very early, proved to be the most severe that had been known since the settlement of the country, with the result that restrictive measures were utterly useless. Severe and frequent storms, attended by intense and continuous cold, drifted the cattle for long distances across the prairies, and fences were cut or broken down to prevent the storm-driven animals from piling. The diseased cattle drifted in many cases over a hundred miles from north to south, mixing as they went with healthy herds, which in turn became infected. Owing to the cattle huddling and milling together for protection against the cold, the disease spread with extraordinary rapidity until, except in a few fortunate districts, it was almost as generally prevalent as it had been before the adoption of compulsory treatment.

The losses from its effects, combined with the severity of the weather, were very serious indeed. After the experience of this winter the majority of owners were only too ready to advocate compulsory dipping in the following season, and although the numbers had, from the causes mentioned above, largely decreased, still 382,921 cattle were treated the following fall.

As a result of this treatment many districts were altogether freed from infection, while certain other localities from which the disease had been eradicated by the dipping orders of 1904-1905, had escaped reinfection.

The owners resident in these fortunate districts very naturally objected to being compelled to dip their healthy cattle, many of which were under fence, and as it was found impossible, under existing conditions, to properly delimit infected from uninfected areas without causing very serious friction, I deemed it advisable to abandon the policy of universal compulsory treatment in favour of a system of close inspection, combined with the quarantining and treatment of all herds in which infection was found to exist, as also of all contact cattle. The veterinary inspector in charge of each district was provided with a number of assistant inspectors or range riders, who are kept constantly on the move so as to ensure, if possible, the detection of all cases of mange and the prompt and thorough isolation of infected herds.

This policy has now been followed for three years, and although the disease has not been completely stamped out, it may be said to be under very fair control. The Branch is now fully informed with regard to the localities, and, in fact, the individual herds in which the disease exists, as also those in which it is no longer to be found. Affected herds are promptly quarantined, and, when the weather is such as to permit of this being done, as promptly treated.

Herds in which outbreaks are discovered in winter are closely quarantined and treated as soon as such action becomes possible.

In most cases owners co-operate heartily with our officers. The affected area is gradually being reduced, and there is every reason to hope that with the advance of settlement and the consequent decrease in the number of cattle kept under range conditions, the disease will, within a comparatively short time, be entirely eradicated.

Stringent regulations are enforced with the view of preventing the conveyance of infection to points outside the quarantined area. On a few occasions, through lack of principle, cupidity or ignorance on the part of shippers, or neglect or stupidity on the part of station agents, infected cattle have been conveyed to other districts. Cases of this kind, when detected, are very closely followed and carefully dealt with, the result being that, except in one or two instances, no very serious consequences have followed.

One of the exceptions referred to is the regrettable infection of a portion of the ranching area in the vicinity of Kamloops, B.C. To this neighbourhood the disease was conveyed by cattle shipped from Alberta, although these animals were duly certified as having undergone the official treatment required in the case of all cattle other than those intended for immediate slaughter. Reinfection must, however, have taken place through some indirect channel, as, for instance, yards, chutes, or weigh scales with which the infected stock had previously been in contact.

In Quebec 6 premises were quarantined in connection with this disease, involving the control of 284 cattle, 9 of which were found to be diseased.

In Ontario 17 premises were quarantined, involving the control of 542 cattle.

In Manitoba, 6 premises were quarantined, involving the control of 168 cattle, 38 of which were found to be diseased.

In Saskatchewan 96 premises were quarantined, involving the control of 19,199 cattle, 185 of which were found to be diseased.

In Alberta 484 premises were quarantined, involving the control of 117,030 cattle, 2,986 of which were found to be diseased.

In British Columbia 15 premises were quarantined, involving the control of 4,280 cattle, 133 of which were found to be diseased.

Thirty-six thousand, seven hundred and thirty-three cattle were inspected on being presented for shipment out of the quarantined area in Alberta and Saskatchewan.

One hundred and eighty-one thousand eight hundred and fifty-nine cattle were inspected in Winnipeg on arrival from points west thereof, all suspected animals, 134 in number, being forbidden export east.

MANGE IN HORSES.

Mange in horses still prevails to some extent, as will be seen from the accompanying statistics, in the provinces of Saskatchewan and Quebec. This disease, seldom fatal, is of such a nature as to interfere seriously with the comfort and condition of animals suffering from it. Like mange in cattle it is of but little importance among animals kept in domestication, as in the early stages it usually yields readily to treatment. Among ranch horses, however, it is occasionally a source of considerable loss, especially during the winter season. Its present prevalence in Quebec is largely due to the operations of unprincipled horse traders who make a business of peddling horses about the country. It is easily spread either by direct infection or

indirectly through the use of harness, blankets, or stable utensils, as also by the placing of diseased horses in feed and livery stables, blacksmith shops, church sheds and other places of a like nature. On being once introduced to any district it frequently becomes widespread before its true nature is recognized. It is thus somewhat difficult to secure its entire eradication from the country, as even if stamped out in one neighbourhood, it is likely to be quietly spreading in other districts.

As will be shown from the statistics of the year just past, as well as for some years previous, it does not now exist in Canada to any alarming extent.

Province.	Out-breaks.	Animals Affected.	Animals Quarantined.
Quebec	120	152	343
Ontario	3	3	6
Manitoba	12	30	45
Saskatchewan	65	159	411
Alberta	22	58	188
Total	222	402	993

Thirteen thousand, two hundred and fifty horses and 182 mules were inspected on being presented for shipment out of the quarantined area in Alberta and Saskatchewan.

MALADIE DU COIT.

This disease, the presence of which in Alberta was first discovered in 1904, still continues from time to time to manifest its existence in different localities in that province. But for the insidious and treacherous nature of the malady it would undoubtedly have been stamped out long ere this, as a close watch for suspected cases is constantly maintained by the large staff of Veterinary Inspectors and range riders employed by the Department.

Ever since the identity of the disease was confirmed through the discovery of the specific trypanasoma in March, 1907, by Dr. Watson, the pathologist in charge of the Branch Laboratory at Lethbridge, that officer has expended much energy and effort in the endeavor to obtain, by scientific means, a more accurate and reliable method of diagnosis than has yet been discovered.

He has also done a very great deal of experimental work both scientific and practical, in the hope of finding some effective means of treating the disease. His more recent statements, the latest of which is published as an Appendix to this report, indicate that there is good ground for the hope that in one, if not in both, of these lines of research he will ultimately be successful. He has been to some extent handicapped in his scientific labours by the fact that, owing to his expert practical knowledge of the disease and his certainty in diagnosis, it has been necessary to employ him, at times far afield, in the investigation of outbreaks or suspected outbreaks of the disease.

By reference to previous reports it will be seen that the first cases of maladie du coit detected in Canada owe their origin to horses brought from the United States, the infection having been traced to this source in not less than three separate and distinct importations. For some years back the United States authorities have reported their territory to be entirely free from maladie du coit, but recent information would appear to indicate that the disease still lingers in more than one district in the prairie country south of the line.

Although the disease has undoubtedly existed in the United States since its first importation from France to the State of Illinois in 1882, the pathologists of that country have hitherto failed to find the specific causal agent (*trypanasoma equiperdum*), which, as stated above, was first identified on this continent by Dr. Watson in March, 1907.

So far we have fortunately been able to detect in the early stages most of the outbreaks which have taken place, and through a careful inspection of all horses shipped from the infected area, to confine the disease almost entirely to the districts in which it first made its appearance.

A somewhat suspicious case occurred during the past year in a stallion which had been taken from Saskatchewan to Vancouver, B.C. As the animal was in a very unhealthy conidtion, and of but little value, I deemed it best, in view of all the circumstances, to have him destroyed on suspicion, and was greatly relieved at learning from the result of the post mortem examination that he was really affected with botryomycosis, and not with maladie du coit.

So long as horses continue to be bred and raised under range conditions within the affected area, it will be a matter of great difficulty to entirely eradicate this disease, as the chances of infection from unsuspected chronic cases, especially in mares, are very great. Cases which occur among domesticated horses are, as a rule, easily and quickly detected, but where animals are ranging under natural conditions over large areas of unfenced land, sometimes unseen by their owners for months or even years, it is possible for a single animal to spread the disease widely before being recognized as an infective agent.

The following are the statistics regarding maladie du coit for the year ending March 31, 1911:—

Forty-one animals, valued at $5,110 were slaughtered as being affected with this disease, at a cost of $3,406.60, distributed as follows:—

District.	Suspected and Quarantined.	Slaughtered.
Alberta—		
Calgary	9	3
Macleod	567	16
Medicine Hat	94	18
Red Deer	8	3
Victoria	4	..
	682	40
(Value $4,960.00. Compensation $3,306.60.)		
British Columbia—		
Vancouver	1	*1
(Value $150.00. Compensation $100.00.)		

*Suspected maladie du coit; afterwards found to be affected with botryomycosis.

SHEEP SCAB.

It would almost appear as if the earnest and painstaking efforts which the officers of this Branch have, ever since 1902, been devoting to the eradication of sheep scab in Canada have finally met with success. The history of the campaign against this disease during the period mentioned is most interesting and instructive.

Originally introduced to Ontario by sheep from the United States it became widely distributed by sales from the pure-bred flock in which it had secured a foot-

hold. Many different districts in Ontario became infected, while the disease also developed in the flock of one Quebec breeder.

To any one familiar with the insidious nature of sheep scab it is scarcely necessary to dwell on the intricacies of the situation thus created, or to dilate on the immense amount of steady, persistent work involved in tracing up and dealing with various flocks which, directly or indirectly, had become contaminated.

With the exception of a few small flocks in Quebec, and a still smaller number of suspected cases in Ontario, no work in connection with this disease has been required during the year just passed.

A somewhat interesting case was brought to light at Winnipeg. The veterinary inspector in charge of one of the abattoirs under inspection in that city noticed that an aged sheep which was kept for the purpose of leading other sheep to slaughter was suffering from some irritating skin affection. On making an examination he was surprised to find that the animal was badly affected with scab. He at once reported the matter to Dr. C. D. McGilvray, the officer in charge of the work of this Branch in Manitoba, who in turn informed me of the circumstances. Instructions were at once issued to trace back all consignments of sheep which had been received at this abattoir for several months previously.

In conformity with this order, thirteen premises in Manitoba, Saskatchewan and Alberta, and twenty-five premises in Ontario, were immediately visited and thoroughly examined, but in no case were our officers able to discover any evidence of the existence of sheep scab.

The thorough, systematic work performed by the veterinary staff in dealing with this disease has met with the hearty appreciation of all the sheep growers of the country, a gratifying result of this state of feeling being the disappearance of the strong tendency to conceal the existence of the disease, which formerly prevailed, especially in the case of some owners of pure-bred flocks.

In Quebec 68 animals on 6 premises were found to be affected with sheep scab, involving the quarantine of 418 sheep on 60 premises, distributed as follows:—

District.	Affected.	Quarantined.
Yamaska	68	358
Nicolet	..	60

In Ontario 107 animals on 3 premises were suspected of being affected with sheep scab and were quarantined, until twice dipped, as follows:—

District.	No. of Premises.	No. Quarantined.
York	1	14
Kent	1	9
Ontario	1	84

In Manitoba one animal was quarantined and treated at Winnipeg, being affected. The premises were subsequently released.

RABIES.

I am glad to be able to report that rabies, which since 1907, has existed to a somewhat serious extent in the western peninsula of Ontario, has, to all appearances been successfully brought under control.

The following extract from my annual report of last year indicates the state of affairs which existed with reference to this disease on the date of its issue, namely March 31, 1910:—

"The outbreak of rabies, which beginning at Queenston, Ont., in May, 1907, gradually extended over the western peninsula of Ontario, assumed during the past year, such alarming proportions as to necessitate the adoption of somewhat stringent measures.

"It was necessary in February last to secure the passage of an Order in Council requiring the muzzling, or detention under lock and key, of all dogs in that part of the western peninsula of Ontario lying west of the eastern boundaries of the Counties of York and Simcoe. By securing the co-operation of the provincial health authorities, it was possible to minimize the expense of enforcing this order, which, although not as closely observed in some districts as it might have been, has already largely reduced the number of outbreaks.

"In order to prevent the spread of the disease to other portions of the Dominion, the movement of dogs from the area described was, early in March, entirely prohibited. As an illustration of the need for this precaution, I may cite the fact that an outbreak of rabies, which occurred last year in Alberta, was traced to a dog shipped from the infected area in Ontario several months previously.

"The success which has attended the enforcement of these orders is such as to encourage the belief that the outbreak will shortly be entirely under control.

"Although a great many human beings have been bitten by rabid or suspected dogs, the prompt measures adopted by the Ontario Board of Health, in providing for the application of the Pasteur treatment, have apparently been successful in counteracting the infection, except in one case where death supervened under very painful circumstances.

"Large numbers of horses, cattle, sheep and swine have contracted the disease through being bitten by rabid dogs, some individual owners having in this way suffered rather serious losses.

"While, owing to the long and open boundary between Canadian territory and that of the United States, it is almost too much to hope that we will be able to prevent the introduction of fresh infection from time to time, a task successfully accomplished in Great Britain by means of muzzling orders and strict quarantine precautions, I am inclined to believe that it will be possible to successfully control the present outbreak and keep it within bounds.

"In some of the United States, where the disease exists continually to a greater or less extent, the wild animals have become infected. Such a condition enormously increases the risk of spreading the infection, and I need scarcely point out that should the disease ever obtain a foothold among the wild animals of northern Canada, it would be practically impossible to secure its eradication."

It is now, however, gratifying to be able to report that the stringent measures above referred to have proved most effective in stopping the spread of the disease.

An outbreak of rabies in the vicinity of Red Deer, Alberta, in the latter part of 1909, was found, on investigation to be due to a dog shipped from Hamilton, Ont., where a number of cases were shortly afterwards discovered and dealt with.

Early in April, 1910, a small but troublesome outbreak of rabies took place in the neighbourhood of Minnedosa, Manitoba, the infection being directly traceable to

a small fox terrier shipped from Ontario in November, 1909, previous to the passing of the order preventing the movement of dogs from, or out of the prescribed area in the latter province.

The original infected dog in this Manitoba outbreak was destroyed by the owner as soon as suspicious symptoms were noticed, and the prompt action of the officers of this Branch in tracing and dealing with contact cases was successful in confining the infection to nine premises, which were placed under quarantine, no animals other than dogs having been involved.

This case is especially worthy of note on account of the long period during which the disease remained latent, as infection must have taken place prior to the dog's removal from the infected district in Ontario. Cases such as this, and that above alluded to as having developed in Alberta under somewhat similar circumstances, indicates very clearly the advisability of prohibiting the movement of dogs from any district in which rabies is at all prevalent.

The following statistics furnish in concise form a history of the outbreak in Ontario from the date of its commencement, May, 1907, up to the present time. I may add that, although the orders were generally well observed, it was necessary in some few instances to take legal proceedings against persons contravening their provisions. In every case in which this was done a conviction was obtained and a suitable penalty imposed.

The following are the outbreaks in Western Ontario reported to and dealt with by the Health of Animals Branch, since the disease was first introduced in May, 1907, by a dog from the State of New York, which crossed the suspension bridge at Queenston, and after biting several Canadian dogs, returned to the United States without, at the time, attracting any serious attention:—

Date.	No. of premises quarantined.	County.
1907	8	Welland.
	10	Lincoln.
Total, 1907	18	
1908	8	Haldimand.
	3	Brant..
	25	Norfolk.
	3	Oxford.
	2	York.
	1	Welland.
Total, 1908	42	
1909	21	Waterloo.
	12	Wentworth.
	1	Oxford.
	17	Norfolk.
	8	Brant.
	31	Perth.
	2	Welland.
	11	Huron.
	39	Middlesex.
	2	Simcoe.
	2	Kent.
Total, 1909	146	

Date.	No. of premises quarantined.	County.
January, 1910	1	Welland.
	11	Perth.
	1	Middlesex.
	13	Kent.
	2	Norfolk.
	12	York.
	1	Waterloo.
Total, January, 1910	41	
Feburary, 1910	1	Waterloo.
	1	Brant.
(Note.—Quarantine order issued Feb. 5, 1910).	2	Kent.
	4	Elgin.
	24	Perth.
	5	Middlesex.
	8	York.
	17	Welland.
	1	Wentworth.
	5	Huron.
	5	Haldimand.
	1	Lambton.
Total, February, 1910	74	
March, 1910	4	Kent
	19	Middlesex.
	6	Waterloo.
	1	Halton.
	1	Welland.
	11	Perth.
	7	Durham.
	1	Peel.
	1	York.
	7	Oxford.
	2	Wellington.
	2	Huron.
	1	Norfolk.
Total, March, 1910	63	
April, 1910	1	Elgin.
	1	Grey.
	2	Peel.
	1	York.
	3	Kent.
	4	Bruce.
	8	Perth.
	4	Middlesex.
	1	Waterloo.
	1	Wellington.
	8	Oxford.
Total, April, 1910	34	
May, 1910	2	Brant.
	2	Elgin.
	5	Kent.
	7	Lincoln.
	8	Middlesex.
	4	York.
	7	Huron.
Total, May, 1910	35	

Date.	No. of premises quarantined.	County.
June, 1910	*1	Hastings.
	1	Essex.
	3	Welland.
	1	Lincoln.
	2	Elgin.
	17	Perth.
	5	Huron.
	1	Middlesex.
	1	Kent.
Total, June, 1910	32	
July, 1910	2	Perth.
	2	Middlesex.
	1	Welland.
Total, July, 1910	5	
August, 1910	*2	Wentworth.
	3	Wellington.
	1	Lincoln.
	1	Waterloo.
	2	Middlesex.
Total, August, 1910	9	
September, 1910	1	Halton.
	1	Peel.
	1	Nipissing.
Total, September, 1910	3	
October, 1910	1	Wentworth.
	1	Lambton.
	1	Middlesex.
	*4	Parry Sound.
	*4	N. Ontario.
Total, October, 1910	11	
November, 1910	*6	York.
	*1	Parry Sound.
Total, November, 1910	7	
*2 December, 1910	4	Welland.
Total, December, 1910	4	
January, 1911	1	Grey.
Total, January, 1911	1	
February, 1911	1	Dufferin.
Total, February, 1911	1	
March, 1911	4	Welland.
Total, March, 1911	4	

*Quarantined because dogs moved out of infected area.
*2 Quarantine order permitted to lapse December 7th.

SUMMARY.

Year.	Number of premises quarantined.	Number of Counties.
1907	18	2
1908	42	6
1909	146	11
1910	307	25
1911	146	23

One hundred and fifty-five premises were quarantined during the year ending March 31, 1911, on account of the prevalence of rabies, distributed as follows:—

ONTARIO.

County or District.	Premises Quarantined.
Peel	3
York	11
Elgin	5
Perth	27
Kent	11
Bruce	4
Middlesex	17
Waterloo	2
Brant	2
Oxford	8
Wellington	4
Grey	2
Lincoln	9
Huron	12
Welland	12
Hastings	1
Wentworth	3
Nipissing	1
Halton	1
Lambton	1
Parry Sound	5
North Ontario	4
Dufferin	1
MANITOBA.	
Marquette	9
Total	155

ANTHRAX.

The policy of preventive inoculation with the anthrax vaccine, which, for a number of years back, has been furnished from the Biological Laboratory of the branch, appears to have had a remarkably good effect in controlling the ravages of anthrax in those districts where this disease had obtained a foothold. The word 'apparently' is used advisedly because of the fact that owing to the exceedingly

erratic manner in which anthrax manifests itself, the fact of its non-appearance during a given period does not actually demonstrate the efficacy of any method of dealing with it.

So far as it is possible to judge, however, the evidence available is strongly in favour of the theory that outbreaks in infected districts are being prevented by the regular and systematic use of the vaccine, which is furnished to stock owners at the nominal price of five cents per dose.

The following outbreaks were reported and dealt with during the year:—

Province.	Outbreak	Animals quarantined
Quebec	5	126
Ontario	2	42

In Quebec, 2 outbreaks were in the Berthier district, and the others in St. Hyacinthe, Rimouski and Jacques Cartier respectively.

In Ontario one outbreak was in the district of Lennox and Addington, the other being in South Grey.

Two hundred and fifty-four doses of anthrax vaccine were supplied from the Biological Laboratory.

BLACK QUARTER.

The statements above made with reference to the preventive inoculation for anthrax apply with even greater force to the same method of dealing with black quarter. This disease, which was formerly considered to be a form of anthrax, is of an entirely different nature, and not being as a rule transmissible by direct contact, is not now scheduled as one of the diseases to be dealt with under the Animal Contagious Diseases Act.

The vaccine manufactured in the Biological Laboratory of the Branch is in great and constantly increasing demand among owners of cattle in those districts where the disease is known to exist. The preparation in question appears to give good satisfaction, as up to date, absolutely no complaints have been received from any of those persons who have adopted its use.

Seventeen thousand two hundred and sixty-four doses of blackleg vaccine were supplied from the Biological Laboratory, in addition to that sold by druggists throughout the Dominion.

RED WATER IN BRITISH COLUMBIA.

The investigation begun in 1907 into the nature and causes of this disease which prevails to some extent among cattle in various parts of British Columbia, is still in progress.

Owing to the resignation of Professor Bowhill in April, 1909, the work has since being in the hands of Dr. Seymour Hadwen, assistant pathologist, who, in view of his special training, received under the famous Professor Nuttall, of Cambridge University, is particularly well fitted for the task which has been entrusted to him, as will be seen from his report which is printed as an appendix hereto. His findings are entirely at variance with the conclusions arrived at by Professor Bowhill, during the comparatively short period in which that gentleman was engaged in this work. There is every reason to hope that it will be possible in the near future to furnish such information and advice to the stock owners in the affected districts as will put an end to the somewhat serious losses which have, from time to time, been caused by this peculiar malady.

In order that he might have as many opportunities as possible of observing actual cases of the disease, Dr. Hadwen has been stationed, hitherto, in a district removed from ordinary routes of travel, and somewhat difficult of access. As, however, the evidence now available indicates that the disease is not of a contagious nature, there does not appear to be any further necessity for Dr. Hadwen's continued isolation. I hope, therefore, to be able to arrange in the near future for his removal to a locality closer to the railway, and where it will be possible to readily reach him by mail or telegraph. When this change is made I am of the opinion that he should be furnished with the laboratory facilities of which he has long been in need and which will enable him to pursue his investigations with more certainty, as well as with more celerity, than has hitherto been possible, in view of the disadvantage above referred to.

SWAMP FEVER.

The experimental work in connection with this disease, which, as stated in my report of last year was carried on at Macdonald College by Dr. J. L. Todd, Professor of Pathology at McGill University, was brought to a conclusion in December of 1910. Dr. Todd's special report, which will be found published as an appendix hereto, embodies the result of his work with the two horses which in 1909 I procured in Manitoba, and forwarded to Macdonald College. An account is also given of conditions observed in a number of other animals inoculated from these individuals.

The work was unfortunately interrupted owing to Dr. Todd's departure in November last to undertake research work on the Gold Coast in West Africa, and, in order that he might be under the observation of our pathological staff, the surviving Manitoba horse was brought to the Biological Laboratory of this Branch, where much to my regret he shortly afterwards succumbed to an acute affection of the digestive tract.

The reports from the western provinces indicate that as a result of draining and cultivation in the low-lying districts where this disease was formerly exceedingly prevalent, its appearance is now comparatively rare. This being the case, further investigation of the disease would scarcely appear of such vital importance as it was at one time considered. In view, however, of its fatal nature, and of the possibility of its causing serious losses to settlers in new districts, when first opened up, I am strongly of the opinion that no effort should be spared to add to our present somewhat limited knowledge regarding it.

In this connection it may be remarked that veterinarians throughout the United States, have, of recent years, reported the existence of a disease very similar to, if not identical with this swamp fever of Manitoba, which was first observed by me in the vicinity of Portage la Prairie, in 1884, since which time it has been recognized as a specific affection in many other parts of our western provinces.

PICTOU CATTLE DISEASE.

As a result of the experimental work inaugurated by your Department in 1903 the expenditure in connection with the malady known as Pictou Cattle Disease has since 1906 been altogether discontinued, this malady having from 1882, up to that time, been dealt with as a contagious disease and under a policy of slaughter and compensation. It having been clearly shown by the experiments above referred to, that it was actually due to the ingestion of a weed known as Ragwort (*Senecio Jacobea*), it is of course no longer necessary or possible to continue the payment of compensation.

Every possible publicity was given, especially in the affected districts, to the information secured as a result of this investigation, which included a series of long

continued and carefully conducted experiments, in the feeding of sheep on Ragwort, both green and dry.

As it was found that these animals were apparently capable of assimilating the weed without any injourious results, the farmers in the counties of Picaou and Antigonish, as also those portions of Prince Edward Island, where the weed and the disease existed, were strongly advised to make use of sheep as an economical and profitable means of eradicating this troublesome plant. Numerous farmers followed this advice, but many other methods of eradicating Ragwort were also inaugurated, while the practice of removing it from the hay when cut was almost universally adopted. As a consequence, loss from the disease has become almost unknown, no dissatisfaction being evinced on account of the cessation of compensation payments.

HEMORRHAGIC SEPTICAEMIA.

But little is known regarding the true nature of this malady, and as it has not yet been definitely shown to be contagious, I have not so far thought it advisable to recommend its inclusion among the diseases scheduled under the Animals Contagious Diseases Act.

Only three cases of this disease have occurred in Canada during the year just passed, but from our present knowledge of the malady, this fact affords no guarantee that it will not recur during the present or future seasons.

BIOLOGICAL LABORATORY.

Another important addition to the working efficiency of the service has been provided in the Biological Laboratory, established in 1902, the work of which has since been extended and amplified in many different directions.

The branch now has at its disposal the services of three well-trained, capable veterinary pathologists, while there are also several at different stages of training.

A small branch laboratory for the special pathological study of maladie du coit, and other local diseases affecting live stock, was established at Lethbridge, Alta., in 1905. As will be noted in that portion of this report dealing with maladie du coit, much valuable work has been performed by the officer in charge there.

This laboratory and the small residences occupied by the pathologist and the caretaker, as also the corrals and stables required for the accommodation of the experimental stock are situated on a special quarantine reserve lying on the banks of the Old Man river about seven miles from Lethbridge. This reserve, owing to the topographical features of the district and the necessity of permitting the free access of outside stock to the river bank, is somewhat irregular in shape; it comprises fractional portions of sections 7, 8 and 9, in township 9, range 22, west of the 4th meridian. The land in section 8 is at present held under lease from the Hudson's Bay Company.

As I am strongly of opinion that this reserve is likely to prove of great value to the department for many years to come, I have, for some time been endeavouring to arrange an exchange of government land elsewhere for the leased property, but so far without success.

Another member of the pathological staff is at present engaged in making a careful investigation into the nature and causes of the disease locally known as red water, which exists to a greater or less extent in various parts of British Columbia. In order to enable this officer to properly continue his investigations it will, in my opinion, be necessary in the near future, to establish a branch laboratory at some convenient point in the province.

As indicated by the periodical reports of this Branch, the services of these pathologists are proving to be of great value in enabling us to deal effectively and intelligently with many conditions as regards disease, which in a new country, such as Canada, have hitherto been but imperfectly understood.

In the Biological Laboratory are prepared all the mallein and tuberculin used in the work of the Branch, as also the preventive vaccines for anthrax and black quarter, these being supplied at a nominal price to stock owners throughout the Dominion.

EXPORTATIONS.

ANIMALS Inspected for Export from April 1, 1910, to March 31, 1911.

——	Horses.	Mules.	Cattle.	Sheep.	Swine.
Charlottetown to Great Britain	.....	.....	3	123	.....
St. John " " "	9	.....	1,928	2,508	.....
Quebec " " "	2	.....	257	.....	.....
Montreal " " "	117	.....	72,322	.....	.....
Inspected at Montreal for shipment to Great Britain via Boston and Portland	.....	.....	31,747	.....	.....
Toronto to Great Britain	.....	.....	12,000	.....	.....
Niagara Falls to Great Britain	.....	.....	443	.....	.....
Montreal to South Africa	.....	380	18	248	.....
Halifax " " "	.....	.....	.....	1	.....
Toronto to Bermuda	.....	.....	186	284	12
Halifax " "	59	.....	33	99	.....
Halifax to Jamaica	.....	.....	10	90	.....
" " St. Vincent	2	.....	1	6	.....
" " Barbadoes	16	.....	1	.....	.....
" " Trinidad	8	.....	3	.....	8
" " St. Lucia.-	1	.....	.....	3	6
" " Demerara	1	.....	.....	.....	1
" " Antigua	1	.....	.....	.....	.....
" " Newfoundland	.....	.....	4	.....	6
Sydney to Newfoundland	385	.....	880	214	43
Charlottetown to Newfoundland	33	.....	1,327	2,117	269
Summerside " "	.....	.....	44	309	.....
Montreal " "	.....	.....	1	.....	.....
Bayfield & Mulgrave to Newfoundland	69	.....	768	262	2
Halifax to St. Pierre & Miquelon	.....	.....	5	.....	.....
Sydney " " "	1	.....	51	154	.....
Toronto to United States	.....	.....	.....	530	168
Bridgeburg " "	.....	.....	.....	407	.....
Niagara Falls " "	.....	.....	.....	42	.....
Total	704	380	122,032	7,397	515

ANIMALS Rejected at the following ports from April 1, 1910, to March 31, 1911.

Port.	Cattle.	Sheep.
Montreal	397	2
Toronto	63	.....
Total	460	2

Of the above, 115 cattle at Montreal and 47 at Toronto were rejected for actinomycosis and 24 at Montreal for suspected mange. The rest of the animals were suffering from lameness or injuries received during transportation and showed no indication of contagious or infectious disease.

IMPORTATIONS.

IMPORT Inspections from United States and Newfoundland, from April 1, 1910, to March 31, 1911.

——	Horses.	Mules.	Cattle.	Sheep.	Swine.	Goats nd other animals.
Charlottetown, P.E.I	3					
Halifax, N.S	29	1				
Sydney	61			2		2
Yarmouth	4		1			
St. John, N.B	16		2			1
St. Stephens	17	1	1			
McAdam, Jct	30		3			
Debec Jct	4		2			
Woodstock	19					
Aroostook Jct	54		24	13		
Grand Falls	16					
St. Leonards	4					
Edmunston	5					
Comins Mills, Que	9					
Lake Megantic	62	4				
Coaticooke	6					
Beebe Jct	59		2	14		
Sherbrooke	137	5	19		2	
Highwater	72		3			
Abercorn	14					
St. Armand	17		1			
Noyan Jct	9	1	4			
Lacolle	319	3	1	3		1
St. Johns	1	43				
Athelstan	91		19	1		
Dundee	32		58	20		
St. Agnes de Dundee	2		26			
Cornwall, Ont	5		1			
Prescott	179	1	31			
Kingston	27					
Morrisburg	5					
Brockville	6		38			4
Cobourg	4					
Toronto	1					
Niagara Falls	291	14	42	100		
Bridgeburg	714	9	24	1,181	9	4
Windsor	470		25	42	22	*7 5
Sarnia	284	1	113	344	54	†5
Sault Ste Marie	28		3			49
Port Arthur	6		5			
Rainy River	31	2	14	4		
Fort Frances	432	20	47	1,358		
Ontario General	2					
Emerson, Man	6,229	873	1,816	499	67	28
Gretna	1,931	587	618	87		2
Bannerman	576	11	245	1		
Snowflake	309	7	137	2		
North Portal, Sask	12,438	1,061	6,386	22	8	‡3 6
Marienthal	385	8	167	3		
Wood Mountain	585	7	392	7,327		
Big Muddy	477	16	68			
Willow Creek	454	4	2	3,011		
Pendant d'Oreille, Alta	88		4	1,311		
Coutts	1,364	29	81	16,642		
Twin Lakes	505	8	9			
Alberta General	3					‖92
Gateway, B.C	121	4	46			3
Kingsgate	1,864	87	117			
Nelson	169	4	23	249	3	
Rykerts	31					
Rossland	12		65	32		
Grand Forks	110		19			
Midway	114	7	2			

* 4 elk, 2 asses, 1 burro. † 5 deer. ‡ 3 asses. ‖ 92 buffalo.

IMPORT Inspections from United States and Newfoundland, &c.—*Continued.*

——	Horses.	Mules.	Cattle.	Sheep.	Swine.	Goats and other animals.
Myncaster	18		6	1,846		
Bridesville	55		9			
Keremeos	116	5	47	896		
Osoyoos	470	4	49	4,424		*5
Huntingdon	1,012	52	137	15	2	231
New Westminster	2			625		
White Rock	966	27	16	5,599	2	195
Vancouver	425		3	23,642		24
Victoria	250	20		4,122		6
Nanaimo		14				
B. C. General		23				
White Horse, Y.T.	130		1,029			
Total	33,82	2,963	12,002	73,437	169	561

* 5 asses.

IMPORT Inspections from Mexico from April 1, 1910, to March 31, 1911.

Port.	Horses.	Mules.	Asses.
North Portal, Sask.	180	164	79

IMPORT Inspections from Europe from April 1, 1910, to March 31, 1911.

——	Horses.	Mules.	Cattle.	Sheep.	Swine.	Goats.
Halifax, N.S.			1			
Sydney, N.S.	1					
St. John, N.B.	464	1	41	10	26	2
Quebec, Que.	26		218	3,744	15	2
Sherbrooke	8					
Highwater	18					
Noyan Jct.	3					
Montreal	1,772					
Niagara Falls, Ont.					1	
Bridgeburg	62		15			
Total	2,354	1	275	3,754	42	4

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PURE Bred Imports for the year ending March 31, 1911.

HORSES.

Breed.	Great Britain.	United States.	Elsewhere.	Total.
Clydesdale	1,464	9	.....	1,473
Percheron	164	178	64	406
Shetland	187	1	.....	188
Belgian	78	18	52	148
Standard Bred	.....	86	.....	86
Thoroughbred	10	56	3	69
Welsh ponies	63	.....	.....	63
Hackney	60	1	.....	61
Shire	47	11	.....	58
Iceland ponies	.....	.....	50	50
Suffolk punch	26	.....	.....	26
Exmoor ponies	23	.....	.....	23
Ardennais	.....	.....	12	12
Polo ponies	11	.....	.....	11
French coach	4	2	.....	6
Brabancon	.....	.....	3	3
French draught	.....	1	.....	1
Coach	.....	1	.....	1
German coach	.....	2	.....	2
Hunter	1	.....	.....	1
Total	2,138	366	184	2,688

CATTLE.

Breed.	Great Britain.	United States.	Total.
Polled Angus	132	2	134
Ayrshire	105	.....	105
Holstein Friesian	.....	91	91
Aberdeen Angus	.....	63	63
Shorthorn	23	35	58
Jersey	15	29	44
Red Polled	.....	20	20
Hereford	.....	13	13
Guernsey	.....	2	2
Total	275	255	530

PURE Bred Imports for the year ending March 31, 1911—*Continued.*

SHEEP.

Breed.	Great Britain.	United States.	Total.
Hampshire	2,549	.....	2,549
Oxford	360	.....	360
Shropshire	341	1	342
Dorset	291	3	294
Cotswold	77	.....	77
Southdown	63	1	64
Shetland	21	.....	21
Suffolk	16	.....	16
Lincoln	15	.....	15
Leicester	14	.....	14
Exmoor	4	.....	4
Cheviot	3	.....	3
Merino	.....	1	1
Total	3,754	6	3,760

SWINE.

Breed.	Great Britain.	United States.	Total.
Berkshire	23	47	70
Hampshire	.....	42	42
Yorkshire	19	2	21
Chester White	.....	16	16
Duroc Jersey	.....	10	10
Poland China	.....	6	6
Total	42	123	165

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PURE Bred Imports for the year ending March 31, 1911—*Continued.*

GOATS.

Breed.	Great Britain.	United States.	Total.
Angora	.....	13	13
Toggenburg	2	.....	2
Total	2	13	15

STOCK YARDS AND STABLES.

In connection with the work of the Health of Animals and Live Stock Branches, which, since 1906 when the latter was placed under my supervision, have acted conjointly in the matter, a marked improvement has been brought about in the various live stock markets, as well as in the railway and other stock yards and stables used for the public accommodation of animals, either in transit or when offered for sale.

After the establishment of the Health of Animals Branch in 1902, steps were taken both by legislation and otherwise for the purpose of bringing about a more satisfactory state of affairs than then existed in this regard. The progress made has been gradual but sure, until, at the present time, it is somewhat difficult to find a railway or other stock yard, which is not in a clean, comfortable and sanitary condition.

The same is true of the stables owned by the railway and stock yard companies at the principal shipping points and, in fact, of every large public stable in which horses or other live stock are held for sale or shipment.

A system has been evolved and placed in operation whereby this particular class of work is entrusted to a number of special inspectors whose duty it is to keep a close watch on all establishments of the kinds mentioned above and to see that the provisions of the Act and of the regulations are duly and properly enforced.

A similar advance has been made with reference to all cars used for the conveyance of live stock, which, by arrangement with the various railway companies, are thoroughly cleansed and disinfected under the supervision of special inspectors at many of the principal divisional points.

Under this policy all empty cars arriving at, or passing through the following points must, unless bearing evidences of having previously been so treated, be cleansed and disinfected under the supervision of an inspector before being allowed to proceed: Halifax, N.S., St. John, N.B., Montreal, Que., Toronto, Ont., Winnipeg, Man., Moosejaw, Sask., Medicine Hat, Alta., Lethbridge, Alta., Calgary, Alta., Edmonton, Alta., Strathcona, Alta., Cranbrook, B.C., Nelson, B.C., Revelstoke, B.C., Vancouver, B.C.

On being satisfied that a car has been properly cleansed and disinfected, the inspector attaches thereto a certificate in the form of a card signed by himself, and bearing the car number, as also the date on which it was cleansed and disinfected under his supervision.

The railway companies were at first inclined to minimize the importance of this work, but during recent years they seem to have grasped the fact that it is really to

their advantage, and are now co-operating with us in a very friendly and gratifying manner.

Needless to say the improved conditions attributable to this line of work are greatly appreciated by the stock owning public, and especially by those persons who from the nature of their business are in the habit of shipping stock by rail.

While on this subject, I would remind you that, with your approval, negotiations are now in progress which will, it is hoped, result in the promulgation by the Board of Railway Commissioners, of a set of regulations controlling generally the transportation of live stock and setting forth the conditions under which shipments of this class are to be dealt with. The proposed regulations, when brought into effect, will undoubtedly prove of immense value to the live stock interests of the country, while they will, at the same time, simplify and render largely more effective the work now being done by the officers of this Branch.

MEAT INSPECTION.

The establishment and organization, in 1907, of the Meat Inspection Division of the Health of Animals Branch, consequent on the passing of the Meat and Canned Foods Act, has added very largely to my duties and responsibilities.

For at least a year previous to the date on which the actual enforcement of the Act commenced, namely September 3, 1907, I was busily engaged in the preparation of the necessary legislation, in arranging for the special training and appointment of the inspectors required for the work, and in drafting the regulations necessary for its proper performance and control.

It is scarcely necessary at this date to dwell upon the difficulties encountered in reaching a decision as to the exact nature of the legislation required, and in obtaining its final adoption by Parliament.

The securing of an adequate force of qualified inspectors was by no means an easy task. Scientific meat inspection had not, up to this time, been practised in Canada, nor had it been included as a part of the curriculum at any Canadian veterinary college, while members of the medical profession were even more deficient in knowledge of the subject. Under these circumstances, prompt and energetic action was necessary in order to avoid the anomaly of having an act on the Statute Book without having the means for its effective enforcement. I, accordingly, with your approval, arranged with the authorities of the Chicago Veterinary College for a special course in meat inspection and kindred subjects, at the same time notifying all Canadian veterinary practitioners of this opportunity of adding to their professional knowledge, and qualifying themselves for appointment under the new law.

As it was estimated that not more than forty or fifty inspectors would be required at first, a bonus of one hundred dollars was promised to the first fifty applicants, on condition of their passing the special examination to be held at the close of the course. A number of other veterinarians took this course on their own responsibility, so that the class comprised altogether fifty-nine members. Of these, forty-six succeeded in passing the examination, and from them the inspectors who formed the nucleus of the present staff were selected.

Inasmuch as official meat inspection was an entirely new feature in the Canadian packing industry, the preparation of the regulations demanded the exercise of great care and caution. While it was necessary to provide adequate machinery for the proper carrying out of the Act, it was equally necessary to avoid the adoption of drastic or ill-considered rulings, which might antagonize those whose establishments were to be placed under inspection, by interfering with their business to such a degree as to inflict unnecessary loss or hardship upon them.

Realizing my responsibility in the matter, I decided that the best and safest course to pursue was to submit a draft of the proposed regulations to the packers, and other persons who would be affected by their operation. With your approval therefore, these gentlemen were invited to Ottawa, and the regulations submitted to them for consideration and discussion. Some few minor changes resulted from this conference, but the regulations, as a whole, received the unqualified approval of the great majority of those present.

Every thing being finally in readiness, the enforcement of the Act began, as above stated, on September 3, 1907, when twenty-nine establishments were placed under inspection. The staff at the beginning numbered forty-nine veterinary inspectors, and ten lay inspectors, these officers being divided in proportion to the requirements of the respective establishments.

From the inception of the work up to the present time, steady and gratifying progress has been made. There has been a gradual but very satisfactory and salutary betterment of the conditions under which the packing industry is carried on. In many establishments the sanitary arrangements were of the most primitive kind, the same being true of the methods followed in the slaughter of animals, and in the preparation of meats, and meat food products. Without going into details, which would be out of place in a report of this nature, I may say that a great change for the better has been affected in these respects.

The continued training of the inspectors, a number of whom were without previous professional experience in work of this kind, has been an arduous task. The constant endeavour to secure uniformity in their work, the impressing upon them the importance of combining firmness in the discharge of their duties with courtesy to, and consideration for the owners and managers of the establishments in which they are stationed, the encouragement of 'esprit de corps,' and the development of their self-respect, and of intelligent interest in their work, have entailed upon those responsible for the control of the service a vast amount of patient and painstaking labour.

The number of establishments under inspection has steadily increased until at the present time it has reached fifty-five, some of which, however, are operated only during part of each year. Many of those previously under inspection have largely extended their operations. Owing to these causes as also to resignations, dismissals and transfers to other divisions of the service, the appointment of new inspectors has been found necessary from time to time.

As these can only be selected from among such veterinarians as have passed the special qualifying examination required by the Act, courses in meat inspection are now conducted at the Ontario Veterinary College as also in the veterinary faculty of Laval University. The lectures on this subject at the first-named institution are, with your approval, given by one of the qualified inspectors of the division who is well capable of imparting sound instruction on the practical as well as the theoretical aspects of the work. At Laval, tuition of a similar character is furnished by two of the professors, who, with your approval, were afforded an opportunity of acquiring a knowledge of the subject in the National Veterinary Schools in Alfort and Brussels. This included practical experience in the public abattoirs at the French and Belgian Capitals.

The providing of these special courses has made it possible to secure from among the more recent graduates of Canadian colleges, young veterinarians having at least a rudimentary knowledge of meat inspection and who readily become efficient when brought into actual touch with the work, under the supervision of experienced men.

The number of veterinary inspectors at present employed is 75; the lay inspectors number 13. With the exception of Chief Inspector Barnes, who is stationed at Ottawa, these are members of the Outside Service.

For some little time after the inauguration of the Meat Inspection service there was, needless to say, a good deal of friction between the members of the staff and the

owners or managers of the various establishments. Sometimes the former were at fault, sometimes the latter, while in not a few cases neither could fairly be held responsible, the trouble being due solely to the changed conditions brought about by the new legislation.

All misunderstandings and disagreements of this class were naturally referred to me for settlement, and it is gratifying to be able to state that it was possible in most cases to adjust the difficulty without having occasion to resort to drastic measures. In some few instances, where conciliatory methods failed to effect a friendly settlement, it was necessary to take official action. Where the case was simply one of strained relations, a change in the personnel of the inspection staff was usually all that was required. In all cases, however, where the management of the establishment was clearly at fault, the officers concerned were sustained and endorsed, definite rulings being established accordingly.

Speaking generally, the packers affected by the operation of the Meat and Canned Foods Act have taken an intelligent and reasonable view regarding its enforcement. With few exceptions they have complied more or less cheerfully with the requirements of the Department, in spite of the fact that the fulfilment of these entailed, in every establishment, serious losses through condemnations of meat and other products and, in many cases, a very considerable expenditure in the improvement of sanitary conditions and the providing of the special accommodation necessary for the proper conduct of the inspection service.

Owing, however, to the care which has been exercised and the reasonable way in which difficulties have been met and adjusted, these have gradually become less in number and frequency so that it may be truthfully said that there exists at the present time no grievances as between the packers and the officers of the Branch, although there are still under discussion several questions of policy, the settlement of which can only be effected by changes either in the Act itself or in its interpretation.

The owners of inspected houses, with some justification, hold that so far as interprovincial business is concerned, they are exposed to the competition of diseased and unsound meats sold by dealers who are entirely free from official supervision, and whose condemnations, being made by themselves, are therefore few and far between.

The thoroughness of the work performed by the officers operating under the provisions of the Meat and Canned Foods Act, is responsible for the creation of a rapidly growing sentiment in favour of the establishment, under provincial legislation, of municipal abattoirs in which meats destined for domestic consumption would be subject to expert examination in the same manner as is now done with those intended for export. It goes without saying that if it is necessary to condemn, as our inspectors do every day, a proportion, greater or less as the case may be, of the meats derived from the admittedly high class of animals entering the establishments under inspection, the operations of the ordinary private slaughter house should also be conducted under official control.

It is to be hoped that the public opinion now being formed in this direction, will, in the near future, assume such proportions as will compel our provincial and municipal authorities to provide for a system of domestic meat inspection which will place the products offered by the ordinary retail butchers on an equal footing as regards quality and soundness with those emanating from establishments operated under the provisions of the Meat and Canned Foods Act.

A statement showing the establishments now under inspection, and the results of the post mortem inspections from April 1, 1910, to March 1, 1911, is given below.

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ESTABLISHMENTS under Inspection March 31, 1911.

No.	Name.	Place.	Inspectors.
1	Fowler's Canadian Co	Hamilton	T. M. Pine, V.S. W. A. Morrin, D.V.S. H. Garrett, B.V.Sc. J. Edgecombe
2A	Geo. Matthews Co., Ltd	Hull, P.Q.	W. H. Marriott, V.S. J. F. Campeau, M.V. J. Terrance
2B	Geo. Matthews Co., Ltd	Brantford	W. Kime, V.S. J. G. Davidson, V.S.
2C	Geo. Matthews Co., Ltd	Peterborough	W. A. Henderson, V.S. J. Langevin, M.V.
25	Montreal Abattoir Co	Montreal	F. H. S. Lowrey, V.S. E. G. Lemieux, M.V. J. C. Reid, M.V. R. B. Dellert, B.V.Sc. C. D. Bancroft, D.V.S. J. R. Young
4B	Davies Limited	Montreal	J. W. Porter, V.S. F. A. Walsh, V.S. H. Macey
5	Laing Packing & Provision Co	Montreal	JJ W. Symes, D.V.S. A. W. Beach, V.S. H. Mizener E. Dufresne, M.V.
22	Montreal Union Abattoir	Montreal	L. J. Demers, M.D., M.V. A. J. G. Hood, M.V. C. E. Derome, M.V. N W. Reid, M.V. J. Briere
24	Wm. Clark	Montreal	R. D. Orr, V.S.
29	N. K. Fairbank Co	Montreal	A. R. Douglas, D.V.S.
4A	Wm. Davies Co., Ltd	Toronto	D. C. Tennent, V.S. F. L. Wingate, V.S. W. Moynihan, B.V.Sc. M. W. Everett E. Lallemand
6	Park Blackwell Co	Toronto	A. R. Torrie, V.S. A. R. Monroe, B.V.Sc. T. W. R. Macfarlane, V.S. Edwin Cox
7	Harris Abattoir Co	Toronto	A. C. Walker, V. S. D. A. Irvine, V.S. J. E. A. Duhamel, M.V. A. A. Belanger, B.V. Dennis Brown
28	W. Wight & Co	Toronto	A. Compton-Lundie, V.S.
8	D. B. Martin Limited	West Toronto	F. Fisher, V.S. F. A. McNally, V.S. J. A. Hodgins
9	Gunns Limited	West Toronto	J. H. Thompson, V.S. J. E. Morse, V.S. R. Duhault, M.V. C. Brittain
4C	Davies Packing Co	Harriston	C. J. Johannes, V.S. J. O. Guertin, M.V.

ESTABLISHMENTS under Inspection March 31, 1911—*Continued.*

No.	Name.	Place.	Inspectors.
10	F. W. Fearman Co., Ltd	Hamilton	A. C. Ramsay, V.S. W. J. Moon, V.S.
11	Ingersoll Packing Co	Ingersoll	E. R. Farewell, V.S. C. L. Wallace, B.V.Sc.
13	Whyte Packing Co	Stratford	C. E. Edgett, V.S. J. N. L. Couture, M.V.
14	Collingwood Packing Co	Collingwood	W. R. Bell, V.S.
16	Wm. Ryan Limited	Fergus	G. C. Brownridge, V.S.
17	Jones Packing & Provision Co	Smith's Falls	J. B. White, V.S.
27	Tillsonburg Packing Co	Tillsonburg	W. Lawson, V.S.
18	Swift Canadian Co., Ltd	Winnipeg	A. R. Walsh, V.S. H. Pomfret, V.S. J. R. N. Harrison, V.S.
19	Gordon, Ironside & Fares	Winnipeg	J. D. Ross, V.S. J. H. Shonyo, V.S.
20	Gallagher, Holman & Lafrance	Winnipeg	T. H. Richards, V.S. A. Hobbs, V.S.
21	Western Packing Co	Winnipeg	F. C. Jones, V.S. J. H. Elliott, M.D.
23	P. Burns & Co., Ltd	Calgary	E. A. Bruce, V.S. I. Christian, V.S. T. G. McClelland
18B	Swift Canadian Co	Edmonton	J. R. English, V.S. C. W. J. Haworth, V.S. F. C. Bishop, V.S.
33	Dominion Meat Co	Calgary	C. Maconachie, V.S.
49	A. J. Matthews	Halifax	D. R. Bone, V.S.
50	Davis & Fraser	Charlottetown	W. H. James, V.S.

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DISEASES Found at Establishments under Inspection during the Year ending March 31, 1911.

DISEASE.	CATTLE.			SHEEP.			SWINE.			POULTRY.
	Carcases.	Portions.	Lbs.	Carcases.	Portions.	Lbs.	Carcases.	Portions.	Lbs.	
Abscess	10	18,219		45	150		15	805		
Actinomycosis	13	5,201					1	1,423		
Adhesions		974			72			775		
Albuminous degeneration		147			128			10		
Anæmia	1									
Ascitis				2						
Atrophy		45								
Bruises	112	8,878	208	32	597		21	1,668	1,535	
Cripples	11	154		5	28	30	8	4,088	810	
Cysts	1	21						34		
Cysticercus Bovis	167	23								
Cysticercus cellulosæ							146	18		
Cysticercus tenuicollis					18			10		
Congestion		18					1	77		
Cirrhosis		7		8						
Calcerous deposits				1	2					
Decomposition						5				354
Dirty		120				50			952	
Downers				2						
Emaciation	38			61			7			
Enteritis	2			1			32			
Emphysema								242		
Frozen		5								
Gangrene	1									
Hernia							6	20		
Hydremic cachexia	1			39						
Hypertrophy		2						1		
Hydrothorax				1						
Immaturity	3,731									
Improper bleeding	1			8			20			
Icterus	5			10			2			
Inflammation	2			3			7			
Metritis	10			2			5			
Mucoid degeneration	17									
Mammitis	2						1			
Melanosis	1	1					1			
Necrosis		476		1	3,582			7,421		
Nephritis	6						2			
Parasites		29,010		6	28,186			5,924		
Pericarditis	23			1			6			
Peritonitis	15			9			36			
Pleuritis	5			6			51			
Pneumonia	58			28			81			
Pyæmia or septicæmia	151			25			151			
Putrid						629				
Rheumatism							1			
Sexual Smell	3						58			
Skin diseases							1	104		
Sarcoma							3			
Sour	72	68	196,518	1		8,160			67,052	
Septic infection	1						1			
Tuberculosis	1,492	12,108					1,817	295,925		
Pseudo-Tuberculosis				4	70					

Diseases Found at Establishments under Inspection, &c.—*Continued.*

Disease.	Cattle.			Sheep.			Swine.			Poultry.
	Carcases.	Portions.	Lbs.	Carcases.	Portions.	Lbs.	Carcases.	Portions.	Lbs.	
Tumours	7	50	.....	.....	1	.....	14	86	.....	.....
Uræmia	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Various	8	84	.....	7	8	.....	28	74	.....	.....
Totals	5,969	75,611	196,726	308	32,842	8,874	2,523	318,705	70,349	354
Found dead	110	.....	.....	165	.....	.....	1,085	.....	.....	.....

The following summary shows the results of postmortem inspections of cattle swine and sheep, from April 1, 1910, to March 31, 1911:—

Cattle marked 'Canada Approved'	405,339	
Carcases of cattle 'condemned'	5,969	
Percentage of cattle 'condemned'		1·45
Portions of cattle 'condemned'	75,611	
Swine marked 'Canada Approved'	1,449,714	
Carcases of swine 'condemned'	2,523	
Percentage of swine 'condemned'		·17
Portions of swine 'condemned'	318,705	
Sheep marked 'Canada Approved'	328,709	
Carcases of sheep 'condemned'	308	
Percentage of sheep 'condemned'		·09
Portions of sheep 'condemned'	32,842	
Total number of carcases 'passed'	2,183,762	
Total number of carcases 'condemned'	8,800	
Percentage of carcases 'condemned'		·40
Total number of portions 'condemned'	427,158	

During the course of re-inspection, the following meats were condemned:—

—	Cattle.	Sheep.	Swine.	Poultry.
Sour	196,518	8,789	67,052	.....
Dirty	.....	50	952	.....
Decomposed	.....	5	.....	354
Bruised	208	30	2,345	.....
Total	196,726	8,874	70,349	354

Total amount condemned on re-inspection 276,303 lbs.

SESSIONAL PAPER No. 15c

FRUITS, VEGETABLES AND CONDENSED MILK.

The establishments engaged in the preparation and manufacture of preserved fruits and vegetables, condensed milk and candies, intended for export or interprovincial trade are also, under the provisions of the Meat and Canned Foods Act, subjected to the inspection and supervision of officers specially appointed for this purpose.

The men employed in this class of inspection have been selected on account of their practical knowledge and experience of the trade, as without these qualities, their services would be of comparatively little value. They are not stationed permanently in one establishment as in the Meat Inspection Service, but visit the various canneries and packing houses from time to time at irregular intervals, noting carefully all matters relating to sanitation, methods of operation, quality and condition of products dealt with, and the various substances used for their preservation and colouring.

During the two years subsequent to the inauguration of this service, I did not deem it advisable to promulgate specific regulations for the following reasons: Firstly, it was absolutely necessary, in my judgment to secure a thorough knowledge of the trade itself and of the conditions under which it was being carried on. Secondly, it was advisable that the question of Food Standards, which had for some time been under consideration by the authorities of the Inland Revenue Department, should be definitely and finally settled.

Last year, however, feeling that the time for action had arrived, I prepared a set of regulations covering various matters coming properly within the control of the Act, and following the same course as in the case of the regulations governing the inspection of meats, I invited those engaged in the trade to come or send representatives to Ottawa for the purpose of discussing these before actually putting them into operation. The invitation was accepted in the spirit in which it was given, and the endorsation of those most interested having been thus obtained, the regulations were duly issued and have since been strictly enforced.

I may add that the conditions under which the various industries affected are carried on have undergone very marked and gratifying improvement, this being in many cases attributable in a greater degree to the supervision and advice of the inspectors than to the enforcement of the Act or the regulations.

In concluding that portion of my report which deals with the Health of Animals Branch, I may be pardoned for expressing the opinion that although there is yet ample room for improvement, as well as extension, the service is now organized on a sound and effective basis.

If the country continues to grow and prosper, as at present, it is altogether likely that at the expiry of another decade the work of this Branch will have developed far beyond its present proportions. I have, therefore, constantly kept in view the necessity of providing a sound and safe foundation for an organization much larger and more comprehensive than is at present sufficient for the needs of the Dominion.

LIVE STOCK BRANCH.

When in July, 1906, you added the duties of Live Stock Commissioner to those with which I was already charged in my capacity as Veterinary Director General, the inauguration of the Meat Inspection Service had not yet been considered. Had I then been able to foresee the heavy task about to be imposed upon me by the bringing into force of the Meat and Canned Foods Act, it is scarcely likely that I would have accepted the additional responsibilities of the Live Stock Branch. These responsibilities proved to be heavier than I had expected inasmuch as many of the lines of

work in which the Branch had previously engaged had not been followed to their legitimate conclusion and required more or less disentanglement. The straightening out of these matters and the general reorganization of the Branch occupied a good deal of my time and attention, but when the additional work in the Health of Animals Branch, above referred to, is taken into consideration, the progress made even during the first two years, may be looked upon as fairly satisfactory.

But little new ground was broken until 1908, when most of the old difficulties having been adjusted, and a better understanding established between the Branch and the public, it became possible to put into actual practice some, at least, of my plans for the furtherance of the live stock industry.

The progress since made has been neither startling nor spectacular but it has been steady, and if one may judge from the opinions expressed by those most interested, of such a nature as to meet with general approval.

The possibilities of the Branch are practically unlimited, and I feel satisfied that a Live Stock Commissioner, if accorded a fair degree of latitude and provided with a reasonable, but not necessarily excessive, annual appropriation, could by the exercise of intelligence, energy, and foresight, revolutionize the live stock industry of the Dominion and cause the disappearance of many, if not all, of the striking anomalies to which I have already directed your attention in the opening pages of this report.

Canada is a broad as well as a deep country and one of which agriculture will for all time be the mainstay. Without live stock, there can be no husbandry, as the old and true meaning of this word itself indicates. Without husbandry farming is unworthy of the name, being merely land robbery, which in due time brings its own reward. This principle is as broad and as deep as the country, and to bring it home to the people and demonstrate its soundness and truth, demands a policy as broad and as deep as either the principle or the country.

Until this great truth is realized by those in authority, and an earnest and intelligent effort made to develop the commercial live stock industry of Canada to its fullest capacity, the agricultural production of the country will continue to fall far short of its possibilities and the present inexcusable importation of agricultural products will tend to increase rather than diminish.

So serious is the situation and so intricate are the issues involved, that it is perhaps but natural that there should be, on the part of those officially, and shall we say morally, responsible for the care and development of Canadian agriculture, more or less doubt and hesitation, both as to the nature of the remedies required and the wisdom of undertaking their application.

That action, prompt, practical and courageous, is needed, there can be no manner of doubt. Exactly what this action should be is a question which can only be decided by a careful, thoughtful and far-reaching investigation of the conditions now existing with a view of ascertaining the reasons, past and present, for their existence and the best and most practicable methods likely to prove effectual in bringing about, within a reasonable time, the improvement which every one deems to be necessary.

This is the course which, with your approval, has already been adopted with regard to the long decadent sheep industry of Canada and there is every justification for the hope that the report of the commissioners, soon to be made public, will, so far as this particular class of live stock is concerned, point the way to better things. A similar policy should, in my opinion, be at once adopted in regard to the beef production of the country, the latest figures in regard to which indicate a very serious falling off. That this falling off is partially due to changes which have been taking place in connection with the ranching industry in western Canada, is of course beyond question. There are, however, other reasons, among which may be reckoned the rapid development of the dairy industry and the consequent diminution of the number of animals of the beef breeds produced in the older provinces, the wholesale slaughter of

young calves and the practice rapidly growing in favour among dairymen, especially those engaged in milk production, of buying cows fresh and selling them dry for slaughter.

With reference to this phase of the subject I have no hesitation in saying that, owing to the widely divergent views held on the one hand, by those interested in the breeding of beef cattle and on the other, by those devoting their attention to the dairy breeds, there has been a most regrettable failure to investigate fully and fairly the comparative merits of the milking Shorthorn or for that matter of any class of cattle combining milking qualities with beef production.

The Canadian swine industry also, although in Ontario recently showing some signs of recovery from the serious depression which, as a result of low prices, overtook it several years ago, is capable of an infinitely larger development than it has hitherto seen.

In Quebec, as in the Maritime Provinces, the swine industry has never received the attention which it merits, the production being, in fact, far short of the actual local requirements, whereas, under proper conditions, there should be a large surplus for export.

In the western provinces, especially, this branch of animal husbandry has never as yet been taken up with any degree of interest or enthusiasm, and this in spite of the fact that, with reasonably favourable marketing facilities, it is unquestionably one of the most profitable adjuncts of the grain farm.

There is no doubt that in the western provinces the production of both cattle and swine has been seriously retarded by the unfortunate marketing conditions which have too long prevailed in that part of the country. These conditions, coupled with the difficulty and cost of transportation, have undoubtedly caused much disappointment and discouragement to western farmers, and are largely responsible for their lack of inclination to engage in the production of these two classes of stock.

The horse-breeding industry, too, save in a few favoured districts where the value of the pure bred sire is fully understood and appreciated, is very much less profitable to the farmer than it should be. The prices paid for all classes of horses have during recent years been comparatively high, but the great disparity between the figures brought by good individuals of any special class as compared with those obtained for the underbred nondescripts, of which so many are produced in Canada, clearly indicates the necessity for an educational campaign and, where this has not already been provided, a reasonable measure of governmental control.

Feeling as I do that the adoption of any comprehensive policy for the betterment of live stock conditions in Canada should be preceded by a full and searching inquiry, such as is now in progress regarding the sheep industry, I will at this stage offer no suggestions. I cannot, however, refrain from expressing the opinion, reached only after very serious consideration of the whole subject, that our Ontario breeders of pure bred stock are themselves largely, if not altogether, responsible for the present unsatisfactory state of affairs. These gentlemen, almost without exception, have devoted their time and attention to the cultivation of the United States market for pure bred stock, while they have at the same time neglected to encourage the development of the industry not only in the other provinces of the Dominion, but even in many portions of their own province. In making this statement, I am quite prepared to admit that the prices paid by United States buyers are often larger and therefore more tempting than those obtainable in Canada, and, further, that it is much less troublesome and expensive to dispose of animals to buyers who come to one's door than to those whom it is necessary to seek out and cultivate. On the other hand, had even a small proportion of the valuable pure bred males which have crossed the line during the last thirty or forty years, been systematically distributed throughout the Dominion, the present day market for high-class stock would have been infinitely safer and more certain than it now is.

A striking illustration of the weakness of our present position was provided three years ago, when, for reasons which in consideration of all the circumstances, were from our point of view quite insufficient, the Canadian trade with the United States in pure bred sheep was practically wiped out by the imposition of a thirty days quarantine on all animals imported to the United States for purposes other than immediate slaughter. As a result of this action, many hundreds of valuable pure bred sheep had to be disposed of at mutton prices, when at the same time the distribution of these animals at fair figures throughout the Dominion would have been an easy matter, provided that our own people had been properly educated with regard to the advantages derivable from the keeping of high-class stock.

I am convinced that nothing would conduce so largely to the welfare of the live stock industry, and, as a natural consequence to the general prosperity of the Canadian farmer, as would the promulgation of a policy which, while leaving the Canadian breeder free from either compulsion or interference in the marketing of his stock, would tend to put a stop to this wholesale and ruinous exportation of our best individuals, at the same time assuring their proper and intelligent distribution throughout those districts in the Dominion best suited for the production and development of the breeds to which they belong.

When our present policy, or rather lack of policy in this regard, is contrasted, especially as to results, with the policy followed by other countries, notably the Argentine, and to a less extent, many others, including the United States itself, it will be readily seen that we are merely reaping what we have sown and that a radical change is necessary if we are to maintain that position among the great agricultural nations of the world to which, in view of our vast resources, we are unquestionably entitled.

I trust that the work, which has been so well begun by the appointment of the Sheep Commission, will be continued until every phase of the live stock industry, as it now exists in Canada, has been fully investigated and carefully studied with a view to the removal of disabilities and the granting of such intelligent assistance as may in each case appear to be necessary or advisable.

On the following pages will be found much useful information regarding the industry in general and the work of this Branch in particular.

In laying this detailed information before you I desire to acknowledge the valuable help rendered in its preparation and compilation by Mr. H. S. Arkell, B.S.A., Assistant Live Stock Commissioner.

THE LIVE STOCK INDUSTRY.

During the past year live stock conditions in the Dominion have assumed such an important relationship to the economic welfare of the Canadian people that a brief consideration of the present situation may be of general interest. Any definite statement with reference to the actual numbers of live stock at present in the country would doubtless be premature, particularly in view of the approaching census. It is nevertheless apparent, as revealed by a careful study of all the returns available, that, while there may have been no marked diminution in the numbers of live stock in the Dominion during recent years, there has been no augmentation at all proportionate to the great increase in population which this year's census is expected to reveal.

NUMBERS OF LIVE STOCK MARKETED AT LEADING CENTRES.

The marketings of live stock present probably the most satisfactory evidence of the general situation. On the one hand, it is evident that in Canada, as compared with former years, there has been no marked decrease in the numbers of cattle, sheep or swine offered for sale in the big centres. Winnipeg returns show a slight increase

for 1910 of cattle and sheep, although a noticeable reduction in hogs. Montreal reports a slight increase in cattle, and a rather larger one in sheep, while the number of hogs remains about the same. Toronto shows a fair increase in cattle, a decrease in sheep and a very satisfactory increase in hogs. The numbers of calves killed in Montreal and Toronto for the years 1909 and 1910 are so nearly alike as almost to indicate that the number of cattle in the country remains about the same. In a word, the totals for the different years in the various classes vary so little as to be significant only on the conclusion that the aggregate of the live stock in the country, provided of course that the output has been a normal one, has not greatly changed. Certain exceptions must necessarily be borne in mind. It is well known for instance that more hogs were bred and fed in western Ontario in 1910 than was the case in 1909. This is indicated in the accompanying tables. The main statement, however, as suggested above, will scarcely be questioned.

It may be well at this point to observe that these comparisons are for absolute aggregates only and their proportion to the growing population of the country is not considered. A comparison on such a basis must evidently reflect greatly to the disadvantage of the present year. One further feature also in the same connection is disquieting if true. The opinion both in stock yard centres and in the country has been generally expresssed that during the past year marketings have included a large proportion of breeding stock, and, for this reason, have constituted a drain upon the country from which it will take some time to recover. The accuracy of this report can of course only be determined after this winter's feeders have been disposed of and when the cattle begin to come forward next fall. It may, however, be noted that the country has usually been found to possess larger resources than pessimistic critics have frequently given it credit for.

LIVE STOCK handled, Canadian Pacific Railway Stock Yards, Montreal, Que.

Month.	Cattle.	Sheep.	Hogs.	Calves.	Horses.
1910.					
January	3,728	2,455	4,946	593	192
February	2,331	395	2,433	767	242
March	2,301	469	3,138	5,351	274
April	2,973	464	2,534	7,379	232
May	2,390	934	2,885	8,133	120
June	3,715	2,867	3,365	5,141	120
July	5,992	4,889	5,734	2,470	102
August	6,374	6,860	6,488	1,881	111
September	5,270	5,998	5,732	1,319	120
October	6,294	9,899	6,446	1,480	77
November	6,023	11,665	6,549	1,386	76
December	4,504	4,385	6,123	851	95
1910, Total	51,895	51,280	56,373	36,751	1,761
1909, "	49,865	41,409	41,165	34,182	2,504
1908, "	45,610	41,041	51,693	31,425	307
1907, "	45,307	37,613	55,672	31,746	184

LIVE STOCK handled, Montreal Stock Yards Company, Limited.

Year.	Cattle.	Sheep.	Hogs.	Calves.	Horses
1910	109,086	46,743	77,228	35,613	5,059
1909	108,253	43,545	92,073	42,151	6,251
1908	136,866	65,693	125,310	29,449	5,788
1907	173,588	81,345	150,061	44,930	6,223
1906	192,067	76,526	143,331	31,945	6,600
1905	140,373	81,072	134,355	27,026	3,454
1904	158,727	120,751	105,301	32,276	5,166

LIVE STOCK handled at the Union Stock Yards of Toronto, Limited

Year.	Cars.	Cattle.	Sheep.	Hogs.	Calves.	Horses.
1910	9,456	165,586	56,342	87,463	6,531	6,140
1909	7,093	114,808	53,972	59,331	5,571	6,982
1908	4,654	70,730	25,237	60,774	3,083	5,957
1907	4,618	91,156	16,094	58,616	2,214	293
1906	4,805	88,808	12,021	3 ,088	834	666
1905	4,414	77,828	5,902	50,442	1,072	465

LIVE STOCK handled at the City of Toronto Cattle Market.

Year.	Cattle.	Sheep.	Hogs.	Calves.	Cars.	Horses.
1910	154,099	134,200	125,324	29,247	10,464	384
1909	172,336	144,984	92,484	30,149	.....	434

Statistics furnished by Superintendents of Stock Yards.

MONTREAL CATTLE MARKETS.

Combined totals of live stock handled at two Montreal cattle markets.

Year.	Cattle.	Sheep.	Hogs.	Calves.	Horses.
1909	158,118	84,954	133,238	76,333	8,755
1910	160,981	98,023	133,601	72,364	6,820

TORONTO CATTLE MARKET.

Combined totals of Live Stock handled at two Toronto cattle markets.

Year.	Cattle.	Sheep.	Hogs.	Calves.	Horses.
1909	287,144	198,956	151,815	35,720	7,416
1910	319,685	190,542	212,787	35,778	6,524

WINNIPEG STATISTICS.

The following figures show the total number of cattle, hogs and sheep received at Winnipeg from western points during 1910, and comparisons with 1909:—

Cattle.	1910.	1909.	Inc.	Dec.
From C. P. points	157,158	144,667	12,491	
From C. N. points	43,361	24,791	18,570	
	200,519	169,458	31,061	
Hogs.				
From C. P. points	68,647	97,210	.....	28,563
From C. N. points	22,985	30,863	.....	7,878
	91,632	128,073	.....	36,441
Sheep.				
From all points	30,775	24,221	6,554	

The hogs and sheep were all consumed locally, as usual. The following figures show the manner in which the cattle were distributed:—

——	1910.	1909.	Inc.	Dec.
Exporters sent east	48,511	72,356	.....	23,845
Butcher sent east	39,677	23,809	15,768	
Feeders sent east	32,213	7,666	24,547	
Consumed locally	80,118	65,627	14,491	

Extract from the Weekly Globe and Canada Farmer Xmas 1910.

PRICES PAID DURING 1910 AT LEADING MARKET CENTRES.

For convenient reference, statements are presented in tabular form, giving the average weekly prices of live stock, for the year 1910, at Calgary, Winnipeg, Montreal and Toronto. Comments upon the market quotations will probably be largely superfluous. One noticeable feature, however, in the case of swine, is that the prevailing prices in the west have been high, and are now exceeding the prices which are at present being paid in the eastern markets. Market reports at this date indicate a scarcity of hogs in the west, and stiffer prices prevail there as compared with the east. Steady prices for sheep and cattle continued at a high level until the close of the year, but have since declined to the disappointment of a great many feeders who had been depending on a strong late winter and early spring market for well fattened bullocks. The decline in the price of cattle, however, appears to have been due, not to an overloaded market, but to the fact that people are now consuming much larger quantities of mutton and pork than was formerly the case. What the situation will be when the great number of feeders purchased for fattening last fall have all been marketed remains to be seen. There is now, to all appearance, no marked increase in breeding operations throughout the country, and it would seem probable that a shortage both of cattle and sheep will be experienced in the very near future.

It may not be out of place to call attention to a second feature of the market reports which is revealed as a uniform condition by a study of the returns. It is a widely recognized fact that, in the case particularly of cattle and sheep, the largest marketings usually occur in the fall months. A great many animals are offered for sale during these months and before winter sets in, in order to avoid the necessity of stabling them. A glance at the tables will indicate that the prices paid for live stock for the months in question are considerably lower than those obtainable during the other months of the year. Packers, of course, take advantage of full markets and low prices, and proceed to store their cellars with meat. This, when sold later, at a time when higher prices prevail, yields them naturally a substantial profit. The deduction is obvious. The farmer in this connection may very profitably take a lesson from the shrewd business instincts of his commercial competitor for the profits which accrue to those engaged in the live stock business.

MONTREAL MARKET REPORT, 1910.

Cattle.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$6 10	$6 25	$6 25	$6 50	.....
February	5 85	6 25	6 50	6 00	.....
March	6 00	6 00	6 25	6 50	$6 75
April	6 75	7 00	7 00	7 00	.....
May	7 75	7 30	7 50	7 50	.....
June	7 25	7 50	7 75	7 37	7 50
July	7 25	6 40	7 25	6 50	.....
August	7 00	6 25	6 25	6 25	6 25
September	5 50	6 00	6 00	6 00	.....
October	5 75	5 50	6 25	5 50	.....
November	5 75	5 25	5 50	5 50	5 25
December	5 75	6 00	6 50	7 50	.....

NOTE.—In every case in the above table and in those which follow the prices given represent the average of the highest quotations for the best grade of stock as reported for the several market days of each week of the year.

MONTREAL MARKET REPORT, 1910.

Sheep.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$4 50	$4 50	$4 50	$4 50	.....
February	4 50	4 50	5 00	5 00	.....
March	4 50	4 75	.....	4 75	$4 75
April	6 00	6 00	6 00	7 00	.....
May	5 50	6 00	6 00	6 00	.....
June	6 00	5 50	5 00	.....	5 50
July	5 00	5 60	3 75	3 75	.....
August	3 75	3 75	3 75	4 25	4 25
September	4 00	4 00	4 00	4 25	.....
October	4 25	4 00	4 25	3 75	.....
November	4 00	4 00	4 00	4 25	4 25
December	4 00	4 25	4 25	5 00	.....

MONTREAL MARKET REPORT, 1910.

Lambs.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$6 50	$6 50	$6 50	$7 00	.....
February	7 00	7 00	7 00	7 00	.....
March	7 00	7 00	7 00	7 00	$7 00
April	*10 00	*9 00	*10 00	*10 00	*8 00
May	*9 00	*8 00	*8 00	*8 00	.....
June	*8 00	6 00	6 50	6 00	6 00
July	5 00	6 00	5 00	5 25	.....
August	5 50	5 00	5 00	5 00	5 00
September	5 50	5 75	5 75	6 00	.....
October	6 00	5 50	6 25	6 00	.....
November	6 25	6 10	6 00	6 10	6 10
December	6 00	6 10	6 50	7 50	.....

* Each.

MONTREAL MARKET REPORT, 1910.

Swine.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$9 25	$9 25	$9 40	$9 50	.....
February	9 25	9 00	9 25	9 50	.....
March	8 75	9 65	10 25	10 25	$10 75
April	10 75	10 00	10 50	10 25	.....
May	10 00	10 00	10 25	10 50	.....
June	10 50	10 50	10 50	10 00	9 30
July	9 75	9 75	10 00	10 75	.....
August	10 50	9 75	9 50	9 50	9 50
September	9 50	9 25	9 25	9 50	.....
October	9 50	8 50	8 75	8 25	.....
November	8 00	7 25	7 25	7 40	7 30
December	7 25	7 40	7 35	7 15	.....

TORONTO MARKET REPORT, 1910.

Cattle.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$6 00	$5 75	$6 15	$6 10	.....
February	6 25	6 50	6 10	6 40	.....
March	6 50	6 75	6 75	6 75	$7 60
April	7 25	7 00	7 50	7 25	.....
May	7 25	7 50	7 50	7 40	.....
June	7 50	7 75	7 85	7 75	7 45
July	7 15	7 10	7 25	7 12	.....
August	7 85	6 70	6 50	6 25	6 65
September	6 65	6 75	7 05	7 00	.....
October	6 75	6 75	6 30	6 40	.....
November	6 25	6 05	6 25	6 20	5 80
December	6 10	6 50	6 00	5 80	.....

TORONTO MARKET REPORT, 1910.

Sheep.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$4 65	$4 80	$5 25	$5 00	.....
February	5 00	5 00	5 25	5 40	.....
March	5 50	5 50	6 00	6 35	$5 50
April	6 50	6 25	6 25	7 25	.....
May	7 00	6 00	6 00	5 50	.....
June	5 25	5 50	5 50	5 50	5 35
July	5 00	4 75	4 60	4 50	.....
August	4 40	4 50	4 50	4 50	4 65
September	4 75	4 75	5 00	5 00	.....
October	5 00	5 00	5 10	5 10	.....
November	5 20	5 00	5 00	4 90	5 00
December	4 25	4 90	4 60	4 60	.....

TORONTO MARKET REPORT, 1910.

Lambs.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$7 00	$7 25	$7 55	$7 75	.....
February	7 00	7 00	7 75	7 50	.....
March	7 55	8 15	9 00	9 25	$8 75
April	8 90	8 50	9 00	9 50	.....
May	*9 00	*8 00	*7 00	*6 00	.....
June	*6 50	*6 50	*6 50	8 25	9 75
July	8 50	8 25	8 10	8 10	.....
August	6 75	6 75	6 75	7 00	6 35
September	6 25	6 35	6 25	6 10	.....
October	6 10	6 30	6 35	6 30	.....
November	5 85	6 00	5 95	5 85	6 00
December	5 50	6 10	6 00	5 90	.....

* Each.

TORONTO MARKET REPORT, 1910.

Swine.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$8 50	$8 65	$8 90	$8 75	.....
February	8 65	8 40	8 65	8 90	.....
March	8 90	9 50	9 75	10 00	$10 15
April	10 00	9 65	9 50	9 10	.....
May	9 25	9 40	9 90	9 90	.....
June	10 00	9 50	9 60	9 50	9 25
July	9 25	9 50	9 75	9 90	.....
August	9 60	8 85	8 85	9 00	9 25
September	9 25	9 25	9 25	9 25	.....
October	9 00	8 75	8 55	7 85	.....
November	7 65	7 35	7 15	7 25	7 35
December	7 00	7 00	7 10	7 00	.....

WINNIPEG MARKET REPORT, 1910.

Cattle.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	per cwt.	per cwt.	per cwt.	per cwt.	per cwt.
January	$4 25	$4 25	$4 25	$4 25	.....
February	4 75	4 75	4 75	4 75	.....
March	4 75	4 75	4 75	5 00	$5 25
April	5 50	5 50	5 50	5 75	.....
May	6 00	6 00	6 00	6 00	.....
June	6 00	6 00	6 00	6 50	6 00
July	6 00	5 75	5 75	5 50	.....
August	5 75	5 75	5 75	5 50	5 50
September	5 25	5 25	5 25	5 25	.....
October	5 25	5 00	5 25	5 25	.....
November	5 25	5 00	4 50	4 50	5 00
December	4 75	4 50	4 75	4 75	.....

WINNIPEG MARKET REPORT, 1910.

Sheep.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
January	$5 50	$5 50	$5 50	$5 50	.....
February	5 50	5 50	5 50	5 50	.....
March	5 50	5 50	5 50	5 50	$5 50
April	5 50	5 50	5 50	5 50	.....
May	7 00	7 00	7 00	7 00	.....
June	7 00	7 00	7 00	6 00	6 50
July	6 50	6 25	5 75	5 25	.....
August	5 50	6 00	6 00	6 00	5 50
September	5 50	5 50	5 50	5 50	.....
October	5 25	5 25	5 25	5 25	.....
November	5 25	5 00	5 00	5 00	5 00
December	5 25	5 00	5 00	5 00	.....

WINNIPEG MARKET REPORT, 1910.

Lambs.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
January	$6 50	$6 50	$6 50	$6 50	.....
February	6 50	6 50	6 50	6 50	.....
March	6 50	6 50	6 50	6 50	$6 50
April	6 50	6 50	6 50	6 50	.....
May	7 50	7 50	7 50	7 00	.....
June	7 50	7 50	7 50	*5 00	7 50
July	8 00	8 00	7 50	6 50	.....
August	8 00	7 00	7 00	7 00	7 00
September	7 00	7 00	7 00	6 75	.....
October	6 75	6 50	6 50	6 50	.....
November	6 00	6 00	6 00	6 00	5 75
December	6 00	6 00	6 00	6 00	.....

*Each.

WINNIPEG MARKET REPORT, 1910.

Swine.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
January	$8 15	$8 25	$8 25	$8 50	.....
February	8 50	8 50	8 50	8 75	.....
March	8 75	9 00	9 00	9 50	$9 50
April	10 00	10 25	10 50	10 00	.....
May	10 50	10 50	10 50	10 50	.....
June	10 75	10 75	10 50	10 50	10 00
July	10 00	9 75	9 25	8 75	.....
August	8 75	8 75	8 50	8 00	9 00
September	9 00	9 00	9 00	9 00	.....
October	9 00	9 00	9 00	9 00	.....
November	9 00	8 00	7 50	7 50	7 50
December	8 00	8 00	7 50	7 50	.....

CALGARY MARKET, 1910.

Cattle.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
January	$4 00	$4 00	$4 00	$4 25	.....
February	4 25	4 25	4 50	4 50	.....
March	4 50	4 50	4 75	4 75	.....
April	4 75	4 50	5 50	5 50	$5 50
May	5 50	5 50	5 50	5 50	.....
June	5 50	5 50	5 50	5 50	.....
July	.....	5 00	5 00	4 50	4 50
August	4 50	4 50	4 50	4 50	
September	4 50	4 50	4 50	4 50	.....
October	4 50	4 50	4 50	4 50	4 00
November	4 00	4 00	4 00	4 00	.....
December	4 00	4 00	4 25	4 50	4 50

CALGARY MARKET, 1910.

Sheep.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
January	$5 50	$5 50	$5 50	$5 50	.....
February	6 50	6 50	6 50	6 50	.....
March	6 50	6 50	6 50	6 50	.....
April	6 50	6 50	6 50	6 50	$6 50
May	6 50	6 50	6 50	6 50	
June	6 50	6 50	6 50	6 50	.....
July	.....	6 50	6 50	6 50	6 50
August	6 50	6 50	5 50	5 50	.....
September	5 50	5 50	5 50	5 50	.....
October	5 00	5 00	5 00	5 00	.....
November	5 00	5 00	5 00	4 50 to 9 00	.....
December	4 50 to 9 00	4 50 to 9 00	5 00 to 9 00	5 00 to 9 00	5 00

CALGARY MARKET, 1910.

SWINE.

Month.	1st Week.	2nd Week.	3rd Week.	4th Week.	5th Week.
	Per cwt.	Per cwt.	Per cwt.	Per cwt.	Per cwt.
January	$7 75	$8 00	$8 00	$8 75	.....
February	8 25	8 75	8 75	8 75	.....
March	8 75	8 75	9 25	9 25	.....
April	9 25	9 75	10 00	10 00	$10 00
May	10 00	10 00	10 00	10 25	.....
June	10 25	10 25	10 50	10 50	.....
July	.....	10 00	10 00	8 50	8 00
August	8 00	8 00	8 00	8 00	.....
September	8 00	8 00	8 00	8 00	.....
October	8 50	8 50	8 50	8 50	8 50
November	8 50	8 50	7 75	7 75	.....
December	7 50	7 50	7 75	7 75	7 75

CANADIAN EXPORTATION OF LIVE STOCK.

Hitherto we have considered only the country's assets as represented by the numbers of live stock which it contains and from the standpoint of the industry as in operation within our own borders. On the other hand, the general situation may be viewed from the standpoint of the returns showing the exports of live stock from the country, and much is to be learned also from a consideration of the nature and extent of the local and home consumption of meats. Nothing is more patent as relative to this inquiry than the falling off in the exports from Canada during recent years. Weddel & Company, of London, report, referring to the two largest countries of the North American continent, 'heavy decreases in importations; reductions being as much as 101,955 head of cattle and 7,704 head of sheep, or 49·6 and 94·7 per cent, respectively. The shrinkage in this branch of the trade has brought about compara-

tive idleness at Deptford and Birkenhead.' Again in another place, they report, in a general statement regarding prospective trade, 'receipts of both cattle and sheep entered at the customs as coming from Canada were appreciably less than even the small totals for 1909, and no considerable importation from that source now seems likely.' With reference to the United States, they report that 'these figures indicate that the persistent reduction in exports during recent years may be expected to continue, until ultimately the United States supply of cattle and beef ceases to be, in any real sense, an important factor in the markets of the United Kingdom. Already the export of live sheep has been abandoned. Live cattle exports have dropped 66 per cent and chilled beef 78 per cent since 1905.'

The actual exports from Canada, both of inspected cattle and sheep, are given in the accompanying tables, and indicate that the exportation of cattle has fallen off 25 per cent in one year alone, and that the exportation of sheep has practically ceased. In 1895 more than 210,000 head of sheep were exported from the port of Montreal, while in 1910 the number was less than 1,000 head. The exportation of cattle from this port for the year 1910 is less than half that for the year 1903. Attention may also be directed to the fact that, while for the twelve months ending March 31, 1907, the exportation of sheep and lambs from Toronto, Niagara and Bridgeburg to Buffalo numbered 130,817 head, the corresponding exportation for the year ending December 31, 1910, amounted to not more than 2,482 head. It will have been observed also that shipments of sheep and lambs have already been made from the United States to Toronto and Hamilton and that, after having been charged a duty at the rate of 25 per cent, a sufficient profit was realized on the shipments to reimburse the dealers for the undertaking. From the facts and reports available, the general opinion seems to be quite well substantiated that the North American countries, including Canada, will very shortly, in the event of no unforeseen developments, cease to be appreciable competitors in the world's foreign meat trade.

EXPORT CATTLE.

	Calendar Years.		
	1908.	1909.	1910.
Halifax to Great Britain	1,120	1,862	.....
" " Newfoundland	46	2	4
" " St. Pierre & Miquelon	32	16	5
" " Bermuda	53	512	33
" " West Indies	16	3	13
Summerside to Newfoundland	.....	.....	44
Charlottetown to Newfoundland	1,238	1,793	1,327
" " Great Britain	.....	.....	3
Bayfield and Mulgrave to Newfoundland	754	858	768
Sydney to Newfoundland	535	645	822
" " St. Pierre & Miquelon	129	145	69
St. John, N.B. to Great Britain	21,853	20,506	2,826
Montreal to Great Britain	99,474	96,639	72,164
" " " via U.S. ports	22,536	10,302	29,737
" South Africa	.....	6	14
" Newfoundland	65	.....	1
Toronto to Great Britain via U.S. ports	5,742	28,180	11,801
" Bermuda	18	201	321
Niagara to Great Britain via U.S. ports	.....	154	443
Bridgeburg to Great Britain via U.S. ports	7,289	131	.....
Saskatchewan and Alberta to Chicago	3,961	664	.....
Total	164,861	162,619	120,395

EXPORT SWINE.

	Calendar Years.		
	1908.	1909.	1910.
Halifax to Bermuda	3	10	.....
" St. Pierre & Miquelon	28	3	.....
" West Indies	6	3	14
" Newfoundland	.....	.....	6
Sydney to Newfoundland	4	.....	45
" St. Pierre & Miquelon	15	1	.....
Charlottetown to Newfoundland	83	20	319
Bayfield and Mulgrave to Newfoundland	.....	.....	2
Toronto to Bermuda	.....	.....	12
" United States	.....	.....	168
Total	139	37	566

EXPORT SHEEP.

	Calendar Years.		
	1908.	1909.	1910.
Halifax to Bermuda	160	382	99
" St. Pierre & Miquelon	34	.....	.....
" West Indies	268	489	100
" South Africa	.....	2	1
Bayfield and Mulgrave to Newfoundland	480	519	262
Charlottetown and Summerside to Newfoundland	2,032	1,948	1,426
" to Great Britain	.....	.....	123
Sydney to Great Britain	8	26	206
" St. Pierre & Miquelon	378	197	202
St. John, N.B. to Great Britain	1,800	149	.....
Montreal to Great Britain	9,674	1,405	.....
" " " via U.S. ports	14,875	.....	.....
" South Africa	68	211	248
" Newfoundland	85	.....	.....
Toronto to Bermuda	70	325	435
" Great Britain via U.S. ports	300	.....	.....
" Buffalo	2,846	15,832	1,558
Niagara to Buffalo	.....	.....	42
Bridgeburg to Buffalo	34,623	28,958	882
Total	67,701	50,443	5,584

Total exports of sheep inspected from Canada to the United States between November 1, 1904, and March 31, 1907, are given below, to show the contrast in the number of sheep exported during the three previous years to those given above for 1908, 1909 and 1910.

Period.	Ending.	Number of Sheep.
12 months	October 31st, 1905	48,397
5 months	March 31st, 1906	57,200
12 months	March 31st, 1907	130,817

Statistics furnished by Health of Animals Branch.

HOME CONSUMPTION.

The somewhat startling fact of the greatly decreased exports of live stock from Canada, when considered in connection with the equally authentic statement that there is no apparent reduction in the numbers produced in the country, can only be explained by the very significant feature of the present live stock trade, namely that of the increased home consumption of meats. The high prices prevailing during the last two years have evidently not been determined by the prices obtainable for export bullocks, but rather by the strong and growing local demand. Packers and butchers have given expression to this conclusion in different ways, and it is a fact that, with prices in Great Britain no higher than they have been during the past year, there existed no particular temptation to shippers and exporters to direct their purchases across the Atlantic. On the other hand, packers in the east have found a very profitable outlet of late for their cured and fresh meat products in the growing markets of the Canadian west. The prophecy was made earlier in the year that the western provinces, having drawn so largely on their resources for shipments east last fall, would find themselves, during the coming summer months, short of supplies for their local butcher shops and that, in all probability, they would be demanding of Ontario and the east a return of the product. This expectation has already been partially realized and it would seem altogether likely that the present demand in the west for eastern meats will be greatly increased during the coming season. The standard of living in Canada has gradually been raised in recent years, and this, coupled with a growing population and steady commercial prosperity, has strengthened the market for all meat products and has materially extended the home consumption of meats.

AN EXPORT TRADE DESIRABLE.

That a healthy and flourishing home trade is a matter for congratulation will scarcely be questioned, but that the country should be satisfied to suffer its exportations of live stock and live stock products to continuously decline and possibly to eventually cease cannot be viewed except with apprehension. The whole subject of the world's trade in meats is of vital interest to the Canadian farmer. The accompanying table presents statistics which will bear careful study. The live stock producing and exporting powers of Australia, New Zealand and the Argentine are creditable alike to the capabilities of these countries and to the foresight and progressiveness of their breeders. The consuming capacity of the people of the United Kingdom is equally noteworthy of attention, and the fact that the prices realized have not declined in consequence of the immense quantities of meat which are annually poured into the British markets gives substantial promise of a consistent and continuous demand which it may yet tax the capacity of these countries to supply.

Not only so, but a new outlet is evidently within the range of possibility, and, should it appear, the export meat trade of the various competing countries will receive a most important stimulus. In some ways perhaps the most vital and suggestive feature of the present situation is to be found in the scarcely suppressed demand amongst the great masses of working people in continental countries that the ports be opened and facilities provided for the importation of foreign meats. It has been learned that such a prospective trade has already been investigated by South American packers. The argument for increased production in Canada is obvious, and the advantages which the realization of an extensive export trade would assure to the country may not be carelessly considered nor lightly dismissed. That the dimensions of this trade are diminishing rather than expanding is a serious reflection upon the progress which we are making, and unless and until the live stock industry recovers itself and accomplishes a satisfactory movement in the other direction the country will suffer in consequence.

SESSIONAL PAPER No. 15c

STATISTICS OF POPULATION AND LIVE STOCK.

Country.	Area Square Miles.	Population.	Cattle.	Sheep.
United Kingdom	110,800	44,537,000	11,765,453	31,164,587
Argentina	1,135,000	6,210,000	29,116,625	67,211,754
Australia	2,945,000	3,773,801	10,626,322	91,617,988
New Zealand	104,700	1,021,000	1,773,326	28,480,707
United States	3,567,563	91,972,266	69,080,000	57,216,000
Canada	3,729,665	7,231,000	7,114,914	2,598,470

STATISTICS OF THE EXPORTS OF MEAT.

EXPORTS.

Country.	Beef.	Mutton.	Lamb.
	Quarters.	Carcases.	Carcases.
Argentina	2,929,758	2,454,401	352,501
Australia	537,442	2,723,148	1,496,660
New Zealand	344,048	1,991,115	3,416,359
United States (live cattle)	*138,387	.....	.....
United States (chilled)	†477,147	.....	.....
Canada (live cattle)	*78,691	.....	.....
Canada (live sheep)	.....	*427	.....
Canada (chilled)	†8,672	.....	.....

*Head. †Cwt.

SHEEP SALES.

It is a regrettable fact that during the past decade the number of sheep in the Dominion has been steadily growing less, this decrease being attributed by different observers to a variety of causes, such as the low price of wool, the prevalence of dogs in eastern Canada and predatory wild animals in the west, the uncertainty of the mutton market, due to alleged combination among buyers, and the growth of the dairying industry and other lines of agricultural specializing.

While each of these conditions has doubtless had its effect in discouraging the keeping of sheep, the principal reason for the retrogression is, beyond question, the fact that, as set forth above, breeders of pure-bred sheep, having established a profitable trade with the United States for their pure-bred rams, have almost entirely ignored the possibilities of the industry in Canada.

During 1908 a distribution of pure-bred rams was made by means of auction sales in Nova Scotia and Prince Edward Island, this work being in the autumn of 1909 extended to several other parts of the Dominion. For these sales the co-operation of breeders of pure-bred flocks was solicited, and was the more easily obtainable in the case of the latter series of sales because of the fact that, owing to the quarantine of thirty days imposed by the United States authorities on Canadian breeding sheep in June, 1908, large numbers of valuable animals were left in the hands of breeders.

This condition, largely due to their own want of foresight in neglecting the development of a home market, rendered them much more willing to supply sheep for our sales than they otherwise would have been.

The work of holding the sales was performed by the officers of the Branch, and all expenses, including transportation, were borne by your Department, while the breeders simply contributed the stock and received full selling price.

Sales were held in Ontario, Quebec, Prince Edward Island and British Columbia. In Ontario the sales were confined to the Upper Ottawa valley, where much of the country is admirably adapted for mutton production. Across the river in Quebec three auctions of rams took place. Further east in that province, sales were held on both sides of the St. Lawrence river. Three sales were held on Prince Edward Island, and one carload was disposed of in British Columbia. In all, 400 pure-bred sheep were placed within reach of farmers who wished to improve their flocks.

The prices obtained varied very widely with the quality of the stock, which was not in all cases of the best, some breeders being apparently of opinion that anything was good enough for Canadian buyers, and also with the different districts. It was very noticeable that in localities where the home flocks were of fair quality, farmers were willing to pay reasonably good prices for good animals, while in the more backward districts even the best sheep were liable to go at mutton figures. This fact in itself constitutes a valuable object lesson, showing, as it does, the possibilities likely to follow an energetic and systematic campaign having for its object the dissemination of good blood in communities which, while well adapted for sheep raising, have never had the opportunity of realizing the advantages to be derived from the use of high-class males.

THE SHEEP COMMISSION.

In general recognition of the situation outlined in the previous paragraphs, it was felt that this Branch of your Department was under obligation to seriously direct its attention to the employment of measures likely to operate toward the improving of the present status of the live stock business. The steady decline in the interest manifested by farmers and the decrease in the numbers of those engaged in Canada in the sheep industry, which, in other countries, has continued to form a very profitable branch of farming, has largely determined the nature of the work which has been undertaken during the past year. The seriousness of the situation, as evidenced by the returns of the numbers of sheep now being handled at our market centres and by the falling off in the exportation of sheep from the country, suggested the advisability of a thorough investigation not only of sheep conditions in Canada, but of a study as well of the various problems involved and of the extent of the trade in sheep raising in Great Britain and in the United States. The census of sheep in Canada reveals the fact that the Dominion, as regards the number of sheep kept, compares not at all favourably with other great agricultural countries of the world. Indeed as compared with them it has permitted sheep raising to become a somewhat insignificant phase of its agriculture, notwithstanding its great adaptability both as regards soil and climate for the growing of mutton and wool. In view of the fact that sheep have not only a direct and primary value through the actual financial returns which they make to their owners, but because they represent as well in themselves a peculiarly important asset in agriculture, owing to their ability to increase soil fertility and to check and destroy the growth of weeds on the land, it is evident that an early and careful inquiry into the conditions attending the breeding and raising of sheep in Canada and elsewhere was in the interests of the farmers and stock breeders of the country. The investigation has been undertaken with a view to the ultimate adoption of a policy which would be likely to promote the successful extension of the sheep industry in Canada.

It seemed advisable to include in the investigation the study both of mutton production and of the growing and marketing of wool. Two commissioners were therefore appointed. Of these, one, Mr. W. A. Dryden of Brooklin, Ontario, is an experienced, highly-trained and successful sheep farmer, who, although a comparatively young man, has already acquired a national reputation amongst Canadian breeders. The other commissioner, Mr. W. T. Ritch, is a wool expert who has had familiar acquaintance with the marketing of wools and with the manufacture and sale of woollen goods, for a long period of years. He has represented English firms in Canada, Australia and elsewhere and the Department was undoubtedly fortunate in securing in him a technical expert, who, in addition to his intimate knowledge of the trade, evinces a keen and sympathetic interest in the development of the sheep industry in this country. By combining the services in this commission of a practical sheepman with those of a technical expert, it has been possible to have the problems of production and of marketing, both as regards mutton and wool, studied and discussed in such close relationship to each other that the inquiry may confidently be expected to successfully serve the purpose for which it was undertaken. The investigation in Great Britain was conducted during the months of August, September and October last and a tentative report of this, the first part of their work, has already been prepared.

In this report, it is clearly shown that the experience of the farmers of Great Britain substantiates the fact that sheep raising has played a most important part in maintaining and adding to the fertility of the soil of the country. It would appear that the industry is indispensable where any system of intensive farming is practised. Moreover, sheep keeping, under such conditions, has been found in every way profitable. The production of mutton and wool has yielded satisfactory returns, even where the expenditures for labour, manures and food have been very large. Certain progressive farmers have of late, in fact, shown a preference for the system in which large amounts of concentrated feeding stuffs, such as cake and corn, are purchased in the place of chemical fertilizers. By this system larger numbers of stock may be maintained on and fed off the land, while at the same time the soil fertility is increased. Through the keeping of sheep, intensive farming has been largely promoted, and in fact has been in no small degree dependent on it.

Not only, however, on high priced land has sheep raising demonstrated its advantages. It alone has made possible the utilization of what would otherwise have been waste areas incapable of bearing dividends to their owners. The hill breeds, including the Black-faced Highland, the Cheviot and the Welsh Mountain, besides producing the best mutton sent to the London market, have been able to gain a living where any other domestic animals would have starved, and have, therefore, furnished a substantial return from otherwise unprofitable land, in this way adding largely to the productive capacity of the country. Sheep, therefore, represent a distinct and special economic value in the assets of the United Kingdom.

Mutton consumption particularly amongst the urban population is on the increase and the British markets would welcome additions from Canada. The revival and development of an export trade, no matter what its dimensions, would find a profitable outlet, particularly for the quality which Canada could produce as compared with that forwarded from Australia, New Zealand and the Argentine, in the markets of Great Britain, and, possibly also, at no distant date, on the Continent of Europe. Notwithstanding the great expansion in receipts of frozen meat during 1910 and notwithstanding the prospect of increased shipments during 1911, it would appear that the British market is quite capable of absorbing without difficulty any additional supply now in sight. Should the Continent of Europe open its markets to foreign meat, the whole trade will be strengthened immeasurably. In view of these facts, the short supply in Canada is an altogether anomalous feature of our live stock industry and one which it is hoped will speedily be eliminated.

The study of the wool situation in Britain furnishes perhaps the most surprising and instructive part of the investigation. The commercial aspect of it in the organization of the great wool markets has a direct bearing upon the production, management and sale of the wool of the farm. The producers are educated as regards what constitutes quality in wool and as to the advantage of careful handling and of placing the fleeces on the market in the best possible shape. Evidently there is a wide margin in a comparison of the saleableness of English and other Colonial wool offered on the London market with that of the Canadian product. An improvement in the methods employed in the production of wool in this country is very necessary, and upon such improvement, when achieved, an extension of the trade may profitably be pursued. Without the systematic dissemination of full information concerning the essentials of a successful wool trade and without the adoption by our farmers of more business-like methods through co-operative marketing or otherwise, it is scarcely likely that much will be accomplished.

Since the return of the commissioners from Great Britain, the investigation has been continued through visits to western Ontario, the Maritime provinces and Quebec, and very gratifying interest has been observed in the provinces mentioned in the work which has been undertaken. The movement has received general support and has met with hearty sympathy. The sheepmen of western Ontario discussed freely the conditions attending their business in its various phases. The losses sustained through dogs occasioned much comment. The wool question received attention. The advantage to be gained through the development of the home market was emphasized.

In the Maritime provinces the attitude of the farmers was remarked as indicating that the time is ripe for the undertaking of a progressive policy. A practical realization was evident of the advantage that lay in the keeping of sheep on the farm. Nowhere was an indifferent spirit manifested. At all the meetings which the commissioners attended information was eagerly sought, and in response to the demands which were made, addresses were given at practically all of the centres visited.

No better meetings were held anywhere than in the province of Quebec. The various problems connected with the industry were intelligently discussed and a movement is already on foot in several localities in the form of an undertaking on the part of clubs of farmers to purchase and breed a number of sheep during the coming year. Upon the completion of the work in Quebec, the commissioners left for Brandon, Manitoba, to pursue from there their investigation in the western provinces and in the States contiguous to the Canadian border.

Until the present inquiry has been completed, any definite statement of the form which the policy, eventually to be adopted, may be expected to take, would doubtless be premature. In the meantime, the studies which are now being made are gradually throwing more and more light upon the general conditions obtaining in the country. It is clear that the increased consumption of mutton, with the consequent higher prices paid on our larger markets, will tend greatly to increase the interest in sheep raising. If this interest can be sympathetically encouraged and directed, it is beyond question that much permanent good will be accomplished. The recommendations of the commissioners will, it is confidently expected, prove invaluable in framing a policy which will enable the department to intelligently foster this great industry.

THE RECORD OF PERFORMANCE.

The work undertaken in connection with the official testing of pure bred dairy cows is now receiving the full endorsation of the breeders in whose interests it was initiated. During the past year especially a very practical turn has been given to the recognition of the importance of these tests. A steadily growing demand at increased prices has been in evidence for cows which have qualified for registration in the Record

of Performance and for the offspring, male and female, of these cows. As an instance of the value that is now being attached to the breeding of bulls from milk-record dams, it may be stated that one of the foremost breeders of Ontario lately advertised the fact that, having purchased a bull out of a cow which was, and is, the champion of her breed in Canada, he would offer for sale the two imported bulls which he had been previously using. The attention which is being directed to the work of our Canadian breeders and the stimulus which it is thus receiving are in themselves direct and most gratifying acknowledgments of the practical utility of these tests.

In Ontario and Quebec there are now four inspectors engaged. Three of them spend all their time upon the itineraries which are regularly mapped out for them, while the senior inspector, Mr. D. Drummond, is now obliged to direct most of his attention to the supervision and posting of the records in the office. Through the courtesy of the provincial governments, the inspection of the official tests in the provinces of Prince Edward Island, Nova Scotia and Alberta is undertaken in each case by one of the provincial officers in accordance with a mutually satisfactory agreement. In British Columbia the work will, by special arrangements, be, from this time on, performed by an officer of the Branch of the Dairy Commissioner.

The accompanying table presents a terse digest of the results of the work during the past year. Report No. 2 of the Canadian Record of Performance will be found as an appendix to the report of this Branch.

In view of the steadily increasing responsibility which the extension of the work entails, it has been deemed advisable to carefully review the regulations governing the official tests and to revise the details of supervision and administration in such points as appeared to be essential. In this connection the co-operation of the breeders having cows entered in the Record of Performances has been secured and the friendly criticisms and suggestions which they have freely made will no doubt prove of great value in assisting us not only to avoid difficulties which might otherwise have been experienced, but also in improving the present organization of the work. Now that the undertaking has established itself in the confidence of the farmers and dairy breeders, it may be found possible and desirable to extend the service somewhat, in such a manner that the advantages which it creates may be more readily made use of by the owners of grade dairy herds in the country. Unquestionably the greatest benefit will be realized when the leaven of the blood of our tested cattle finds its way to the herds of grade dairy cows, upon the returns from which is based, in the manufacture of butter and cheese, the great dairy industry of the Dominion.

RECORD OF PERFORMANCE TESTS.

Cows Entered.

	To March 31, 1910.	Year End'g March 31, 1911.	Total No. to Mar. 31, 1911.
Ayrshire	572	250	822
Holstein Friesian	421	244	665
Guernsey	13	12	25
Jersey	17	52	69
French Canadian	58	28	86
Totals	1,081	586	1,667

Qualified During 1910-11.

	Mature Class.	4-Year Old.	3-Year Old.	2-Year Old.
Ayrshire	13	7	9	23
Holstein Friesian	30	8	15	22
Guernsey	1	1	1	2
Jersey			1	2
French Canadian	6	1	1	2

LIVE STOCK TRADE WITH THE WEST INDIES.

The Maritime Provinces have been more or less interested for some time past in the exportation of live stock to the West Indies and to the possibilities of this trade you have already given favourable consideration. In order to enquire into certain disadvantages under which exporters laboured, and with the view of promoting a more friendly feeling between the live stock breeders of the West Indies and Canada, Mr. E. B. Elderkin of Amherst, Nova Scotia, was engaged, in accordance with your instructions, to undertake, during the summer of 1910, an investigation of this trade. While pursuing his enquiry, Mr. Elderkin visited a number of the West Indian Colonies, including Trinidad, Demerara, St. Lucia, St. Vincent, Barbadoes, St. Kitts, Jamaica, Antigua and Nevis and succeeded in supplying much useful information regarding Canadian live stock to those likely to be interested in its importation. Many of the farmers stated that it had been the usual custom to entrust their orders to breeders in the United States, but expressed themselves as being very willing to make their purchases in Canada, provided that satisfactory stock were guaranteed.

As a result of the investigation, a large number of orders for pure-bred cattle, sheep and swine and for poultry have been received by Mr. Elderkin and conveyed by him to breeders in the Maritime provinces. Most of these have been filled and the shipments have already gone forward. At his suggestion, certain enquiries for police remounts and for carriage horses which were made to him by government officers were directed to Canada and a few orders have already been received by Canadian breeders in consequence. In connection with shipments of stock to the West Indies, an important concession has been obtained from the shipping agents at Halifax who have agreed to a reduction in their tariffs to the standard of rates as applied to similar shipments from the port of New York. Better facilities have been provided as a result of this investigation and it is evident that henceforth the people of the Islands will bear in mind the market of Canada as a source of supply for the selections of live stock which they may find necessary to renovate and build up their flocks and herds.

JUDGES AND LECTURERS.

Practically all the provinces of Canada have participated in the assistance rendered by the Live Stock Branch in connection with the engagement of judges and lecturers for their fairs and institute meetings. Recognizing the advantages to be gained through the free interchange of thought and of service between the farmers and stock breeders of different and widely separated divisions of the country, I have continued to co-operate with the different provincial departments by arranging to pay, in a very great number of instances, the remuneration and necessary travelling expenses of judges, whose names have been submitted and regularly approved for

appointment, for the going and return journeys between their homes and the first and last places of meeting in the province in which they have been engaged. A considerable amount of work is entailed in completing the necessary arrangements in response to the requests as they are received in connection with the appointment of these men. Although it is of such a nature as to command little notice, it is however cheerfully undertaken, since it appears to be in the immediate and direct interest of those engaged in the live stock industry and particularly of those whose farms are situated in the newer and less well developed portions of the country.

Mr. C. M. MacRae, a permanent officer of the Live Stock Branch, devotes practically all his time to meeting engagements of this nature. While the arrangements for the meetings which he attends are usually made by the several provincial bodies, his salary and expenses are, in all cases, met by this Branch. That Mr. MacRae is rendering effective and valuable service is quite evident, in view of the many complimentary references to his work which are made by the various provincial officers by whom his engagements are arranged and with whom he has been associated. It is undoubtedly true that larger results and greater permanent good can be secured by the carrying through, from year to year, under regular officers, of consistent and well considering programmes as applicable to different parts of the country, than by the desultory engagements of occasional lecturers, except possibly in the case of those whose qualifications peculiarly fit them for particular kinds of work. In view of this fact, the feature of our work which has to do with the policy described above might with wisdom be strengthened and extended by the appointment of at least one or more additional officers.

THE MARITIME PROVINCES.

FAIRS.

Ever since the inauguration of this Branch, these provinces have availed themselves of its aid. During the past fiscal year, judges for various fat stock exhibitions, horse shows and fall fairs, have as usual been supplied. The St. John exhibition, the Charlottetown exhibition, the Maritime Spring Horse Show, and the Maritime Winter Fair, in addition to a series of local fairs in each of the three provinces, have profited in this way.

The supplying of these judges, who have usually been selected from Ontario and Quebec, has been productive of more extended results than have been apparent to the casual observer. The most obvious results are to be observed in the object lessons furnished to them at the ring side by the placing of awards, as well as in the satisfaction afforded the exhibitors through the careful and expert judgment of those officiating. A second and in many cases an even more important advantage is obtained when the judges, as those furnished by this Branch are expected to do, explain why and in what particulars the prize animals excel their competitors in the class. This is invaluable to breeders and exhibitors, as it puts them in possession of the facts and assures them that they are receiving impartial consideration. In this connection it may be instanced that by the selection of judges from other provinces the local breeders are placed in touch with men who may not only be good judges but are themselves practical breeders, having a wide knowledge of the herds and flocks of the country as a whole. Meeting with these men promotes more cordial relationships and places local exhibitors and farmers in touch with the best breeders of other provinces. In this way interprovincial trade is fostered and increased to the mutual advantage of all concerned.

As an evidence of the foregoing statements, the following illustration may be given:—Seven years ago the swine exhibit at the Charlottetown exhibition was a fairly

good one, but the majority of the animals of the various breeds were off type or at least of the type of a past decade. The judge, in making his awards, pointed out very clearly the best type of animal in each class and section and drew attention also to points in which the best were faulty. He advised the purchase of boars to correct these defects and his recommendations resulted in the importation of a number of boars, which effected at length, a great improvement in the swine of the province. It is reported that one of the best breeding boars ever owned on the Island was imported at this time. Two years later the Island breeders began to exhibit at the Maritime Winter Fair and have since continued to do so with increasing success. At the last two fairs, a large percentage of the prize money was secured by exhibits from the Island and much of this was obtained by the district of York, into which for seven years some of Ontario's best animals have been imported.

Another marked improvement that may be traced directly to the work of the judges is that to be observed in the classification and handling of the exhibits from year to year. Gradually the classes for grade males are disappearing and now at many fairs, the rules forbid, in the horse classes, the granting of prizes to unsound males.

During recent years a number of county fairs have been started and show steady improvement. While these fairs are not large, yet it is very important that the judges be experienced men, as their advice is sought and taken in regard to all matters relating to animal husbandry and fair management. The exhibitors at these county fairs are laying the foundation for the future, and, as much depends on a right start, expert advice in this regard secures most useful and desirable results.

The Maritime Winter Fair, which was started and is still liberally supported by this Branch, held its most successful show last December. The entries exceeded those of the previous year by 1,100, while the higher average of the quality and fitting of the exhibits pointed to even greater improvement than the increased numbers would indicate. Another hopeful sign was the appearance of new exhibitors who competed and with a fair measure of success. While the yearly growth has been very satisfactory, a comparison of the first with the tenth fair shows remarkable progress. In 1901 two good steers of the desired type and finish were brought to Amherst from Guelph, Ontario, to demonstrate to all the quality and finish required. These animals were a centre of attraction and caused much comment. In 1910 many of the animals exhibited were much superior to the two which had been imported as models ten years before.

The improvement in the type, quality and finish in the sheep and swine classes has gone steadily on. Last year the judges reported a higher average than ever before. The dairy classes have grown from a few animals in 1901 to a great show of excellent individuals that rivals at the present time even the famous dairy show held annually at Guelph.

Lectures given by the ring side and during the evenings of fair week are always well attended and listened to attentively by visitors from all parts of the Maritime provinces who are eager to learn the latest and best methods to pursue in animal husbandry and general agriculture. These lectures, by men who are recognized experts in their particular lines, have done much towards improving the fair and also in widely spreading such useful information as has caused in many districts a marked agricultural revival.

THE MARITIME SPRING HORSE SHOW.

In April, 1910, the first Maritime Horse Show was held at Amherst, Nova Scotia. The draught horses were well represented by many excellent Clydesdales of medium size, good quality and true snappy action, so popular in the Maritime provinces but as yet so scarce. At this show buyers were present from many parts, and several satisfac-

tory sales were effected. The auction sale held in connection with the exhibition assisted the latter in serving a double purpose. The high prices paid during the last two or three years for horses of draught type, together with the keen demand for those possessing weight in combination with quality, has given draught breeding a strong impetus.

The standard bred and roadster classes brought out large fields, but considering the long years horses of this breeding have been the favourites, the showing was scarcely what might have been expected. Too many small animals that were neither speedy enough to go to the races, nor sufficiently good looking to grace a gentleman's road wagon, and by no means heavy enough to do farm work, were in evidence. The breeding of little, unsound, nondescript horses is a heavy loss to any farming community, not only in the actual value of the horses themselves, but as well in that they do not possess the strength to do general farm work properly. A few, large, strong-boned Thoroughbreds were shown; good animals that would do much to improve the run-out blood so common in many sections. In New Brunswick, Nova Scotia, and particularly Cape Breton, there are many districts where Thoroughbreds of the hunter type would work wonders in improving the size and stamina of the light scrub stock which is at present only too common. The carriage and saddle horses were few, and, even these few, were almost all imported. Fortunately some excellent specimens of the correct type in each section were on exhibition, and these did much to popularize their respective classes. Some men of means, as well as a number of exhibitors expressed the intention of purchasing some high class carriage and saddle horses, and stated that they proposed to exhibit them at the next annual show. The enthusiasm created and the lessons taught are bound to do much to popularize breeding to Thoroughbred and Hackney sires, which will, in all probability, do much to improve the light horse stock of the provinces.

INSTITUTES.

Much institute and stock judging work was undertaken during the past year in co-operation with the local Departments of Agriculture, both by permanent officers of the Branch and by gentlemen who have proven themselves specially qualified and who were temporarily engaged to assist. Many new districts were given their first meetings and many old ones revisited. These officers report a larger attendance and greater eagerness on the part of those present to learn the latest and best methods to pursue in the feeding and management of live stock and in the cultivation and rotation of crops best suited for feeding purposes. 'In many districts,' one of the lecturers reports, 'it is necessary not only to explain the various operations of cultivation, but also to give practical demonstrations of them. At times it appeared as if this work was simply a waste of energy and money. Yet looking back over the last ten years a wonderful improvement is evident. Then the value of good cultivation was to kill weeds, and a rotation of crops was unheard of; now these operations are well understood in some districts. In the last ten years the root crop has doubled, while the growing of clover has become common in the better sections. A decade has brought in many good draught sires as a result of the lectures in horse breeding. During the same time many excellent pure bred dairy herds have been built up and a crusade started against the use of grade and scrub sires. The use of pure-bred males, coupled with the adoption of better methods of feeding, care and management, has resulted in a large increase in the output. The sheep and swine in many districts have also been improved and given a forward impetus, all being the result of ten years' work, done a little at a time.'

In New Brunswick last year, officers of this Branch held upwards of 50 meetings. The afternoons were devoted partly to stock judging and partly to cultivation of the soil. For this purpose a convenient piece of ground was selected and upon it all the

operations of cultivation were demonstrated and the reasons and value of each explained. This is work that counts and is of such a kind as is most needed in a majority of the districts, since it combines the theoretical and practical. In Nova Scotia one of the permanent officers has done considerable work. He reports that 'The Feeds and Feeding of Farm Animals' was the subject which proved most popular, and that the discussion of it appeared to be badly needed. Lectures upon the breeding, care and management of horses were also listened to with much interest. Both of these are live subjects, since the principles which they involve are neither clearly understood nor properly practised by the great majority of farmers. The use of small immature scrub sires, coupled with the practice of improper methods in feeding, accounts for the so called 'running out' of the farm animals. This is true of all classes of live stock. Good feeding, or rather the lack of it, is one of the greatest drawbacks to successful animal husbandry in these provinces. Nevertheless, there has been a great improvement during the past ten years, and the work is just started. In Prince Edward Island, since the people have to depend solely upon the soil for a livelihood, much attention has been given to the agricultural interests of that province, and, while a great deal of interesting work has been engaged in in previous years, during the past summer a vigorous campaign was carried on to improve the dairy industry. In fact this has been the live topic at institute meetings for the past two years and the results of these campaigns have been on the whole satisfactory. According to the report of one of the permanent officers of the Branch, this industry suffers from several causes, including amongst others an illadvised system of breeding in which the various breeds are indiscriminately mixed; the use of grade and scrub sires; immature breeding of both of males and females, particularly the continued use of immature and poorly nourished males; the feeding of insufficient and unsuitable food and the lack of business methods in the management of the herds.

At present, however, a few of the dairymen are keeping records of their herds, and, as a consequence, the poorer cows are being weeded out and better feeding methods adopted. The growing of soiling crops is another step in the line of progress, while early fall stabling and feeding, at least in the morning, has come in some districts to be the practice as the direct result of the educational campaign for better dairying. There are a few excellent herds of the leading dairy breeds upon the Island and the number is steadily increasing. These will no doubt make for the dissemination of better blood throughout the province.

MARITIME SHEEP SALES.

The results of the auction sales of pure bred rams held in Nova Scotia and Prince Edward Island during 1908 and 1909 are now quite evident. One of the largest lamb buyers reports an improvement of at least 25 per cent in the lamb crops of 1909 and 1910, in sections where these pure bred rams were used. Considering the favourable climate of these provinces, the amount of cheap land suitable for sheep raising, the ever increasing home demand for mutton and the cheap transportation by water to the great American and British markets, this is an industry the extension of which, in view of its great value to the country, may very properly be advocated.

QUEBEC.

FAIRS.

As heretofore this Branch supplied the judges for many of the Quebec fairs. Some general comments with reference to live stock conditions in that province, as reported upon by these judges, will doubtless prove of interest. It would appear that at present the prize list of the average fair badly needs remodelling. The classifications, particularly in the horse sections, are faulty and often quite indefinite. At

several two-day fairs the first day is taken up in judging what are known as the regular classes, while the second is spent in judging what are termed "specials." This amounts, as a rule, to little more than the awarding of a second set of prizes to the winners of the previous day. At one fair, five first prizes were secured by one horse and yet there were not a sufficient number of classes to admit of a proper classification of the horses shown, the directors claiming that the available funds did not warrant them in providing for additional ones. At the ordinary county fair a very large percentage of the special prize money is practically wasted, from the standpoint at least of the fair itself, since it does not provide further competition in the classes for which it is granted. In the cattle, sheep and swine classes a somewhat similar state of affairs exists. Prize lists need revising and that under competent supervision. A certain amount of progress has been made in the last ten years, but not at all so much as is to be desired.

Following the advice of the judges, many Fair Boards have omitted the classes for grade males from their prize lists. Even yet, however, some remain and continue to constitute a positive detriment to live stock improvement. In the horse classes, grade males over a year old should not be permitted to be entered for exhibition and not at all in the case of cattle, sheep and swine.

It is gratifying to note that from year to year the judges report decided improvement in certain districts. In several sections throughout the province a substantial reputation is being gradually built up for the classes of stock which they produce. In connection with the improvement in sheep and swine it is worthy of more than passing mention that where pure-bred sires introduced by this Branch have reached districts where they and their offspring were given proper care a very marked improvement has taken place. In these districts there has sprung up a steady demand for better sires and quite a number of females also have recently been purchased. This demand bids fair to continue to increase as the farmers learn the value of pure-bred stock when properly fed and cared for.

INSTITUTES.

During the past year many meetings were held in various sections of the province. As Quebec has had no regularly organized system, the work of planning for the series of meetings, of advertising and supplying the lecturers, had all to be undertaken from this office. During the past winter four series of meetings were held; three in the French speaking districts and one in the English sections. The subjects discussed related to the breeding, feeding, care and management of live stock; to the proper cultivation of the soil; and to the practice of crop rotation, the intention having been to encourage as far as possible the production of such fodders as would be most suitable for the feeding of stock.

In the past the growing of hay for sale on the same land for a decade or two has impoverished the soil greatly, and a vigorous educational campaign has been necessary to arouse the people to the need of a different system. The lecturers strongly advised the growing of clover and the adoption of a short rotation of crops. Root culture and corn growing were also freely discussed, and the value of roots and ensilage, both in cheapening the ration and in adding to its palatability and digestibility were pointed out. The breeding up of the herds and flocks of the province by the continued use of pure-bred sires, and by sticking to one particular breed, were also subjects that met with favour. Bad breeding in this as in other provinces, is not the only serious weakness in animal husbandry operations. The practical and profitable returns which may be realized from sufficient and judicious feeding have never yet been seriously considered nor definitely recognized, and, notwithstanding some improvement that has been made, the loss sustained by the farmers, through the practice of improper methods of feeding, is still very great and very general. It has

been continually our policy in this work not only to encourage and assist in the importation of pure-bred animals, but as well as to describe and advocate, through the meetings which have been held under our supervision, the most approved methods in the care and management of live stock.

For a further statement of the work which has been undertaken by this Branch in the interests of agriculture in Quebec, reference may be made to the report of Dr. J. A. Couture, the official representative of the Live Stock Branch in that province, which is printed as an appendix hereto.

ONTARIO.

Ontario, with her well organized Department of Agriculture, and with her various other organizations of many years' standing, has not stood in as great need of the services of this Branch as the other and newer provinces. It has, however, been our policy to render assistance whenever possible. During the past two years the initiation of stock judging schools, in order to provide for better instruction in animal husbandry over this great province, has taxed the local department to secure a sufficient number of trained men who were qualified to take up this work. It is essential that the lecturers be not only practical stock judges, but able also to teach that subject and to give lectures on the breeding, feeding, care and management of the various classes. The Live Stock Branch, having on its staff a few men who for several years have been undertaking work of this nature, has, from time to time as circumstances permitted, placed the services of these men at the disposal of the province.

During 1909-10 some fifteen such schools were held. In 1910-11 the number increased to upwards of fifty, and many more were asked for, which could not be held for want of lecturers. These schools never failed to draw large numbers of people eager to obtain information on such an important and practical subject. One hundred was considered a small attendance, and, only occasionally, has the number been less than 200, while even 600 persons have been present at the afternoon and evening sessions.

In many sections of the province certain branches of animal husbandry have retrograded rather than progressed during the past twelve years. This is particularly true of Eastern Ontario. This section has made progress in dairying and to a less degree in swine raising, but to the neglect of the horse and sheep industries. Until about 1900 over 80 per cent of the draught horses required by the lumbermen and by the carriage and express companies in the eastern cities were raised in this district. To-day less than 25 per cent can now be obtained. This means a serious loss to the whole eastern section. A few years ago also, sheep were to be found on almost every farm, but this part of the province at the present time raises but a comparatively small number. Considering the large amount of land better suited to sheep keeping than to the rearing of almost any other class of stock, considering also the labour problem and the uniformly high prices paid for lambs and sheep during the last few years, it is evident that the sheep industry needs, in the interests of this section, to be encouraged and developed. All over Ontario, in fact, sheep raising has declined and to the great loss of the province. Even the dairy industry has possibilities not more than half developed. By the adoption of better breeding methods; by the use of good pure-bred sires in the grade herds; by adhering, on the part of individual farmers, to a single breed and particularly by practising better methods of feeding, care and management, the output of milk might easily be doubled. In many sections further west and to the north in the somewhat newer districts, the practices followed are generally backward, and much educational work is necessary to bring about a change in the existing conditions.

Ontario has long been rated by the other provinces as the place to which to go for pure bred stock, either to improve herds already established or to start new ones. The exportation of pure bred animals of the various classes to the other provinces has constituted an important feature of its live stock industry, and a great future may confidently be expected in the further development of this trade. The great growth of the country warrants not only the enlarging of breeding operations by those already engaged in them, but also the establishing of new pure-bred studs, flocks and herds. Such an expansion will be necessary if the province expects to develop and maintain its interprovincial trade. Not only so, but it is incumbent upon the breeders that they produce not only more animals, but also individuals of even better average quality, if they would reap the possible and anticipated success.

Hitherto it has been the custom for the breeders in this province to import largely from Great Britain, and a considerable sum is annually expended in the purchase of pure-bred animals from across the Atlantic. Particularly is this true of horses. What is needed at the present time is the persistent and systematic exploitation of the province's own resources by the encouragement and development of home breeding operations. Nothing can foster the progress of a policy of this kind to such a degree as the maintenance and extension of the home trade. In the past it has been the aim of this Branch to develop this trade by every legitimate means. The engagement yearly of Ontario men in various capacities for such work as has been undertaken in the other provinces has been productive of much good. It has brought the breeders of Prince Edward Island and of British Columbia, as well as of the interlying provinces, into closer touch with each other and to their mutual advantage. The sending of carloads of sheep and swine at various times to Quebec, the Maritime provinces, and to British Columbia, has not only improved the quality of these classes of live stock in the above mentioned provinces, but has gone far toward creating a greater future demand. As a natural result of the work which has been undertaken by the Branch, many carloads of both beef and dairy cattle have been purchased in Ontario to improve the herds both in the east and in the west. It now devolves upon the breeders themselves to further develop this market and to maintain it by supplying nothing but first-class stock. There is a great future for Ontario breeders by the pursuit of such a policy and they may do well to cater to such a trade, even at the risk of partially losing that which they now enjoy with the United States. The live stock of Canada has need of the best blood that the Dominion can produce, and the future of the live stock industry in the country will largely depend upon the rapidity with which a consistent policy is adopted by them to encourage and develop the home market and to maintain and extend the trade within our own boundaries.

THE WESTERN PROVINCES.

FAIRS.

The wisdom of the general policy of the Branch in connection with the supplying of judges and lecturers to the various provinces has been fully justified by the results obtained through the assistance furnished to the fairs and exhibitions of Western Canada. The majority of the western exhibitions are very young institutions and, in many cases, the directors and exhibitors are comparatively new to the country and quite inexperienced in fair management. Their efforts to secure for the west the same advantages which township and county shows have been found to offer in the east were frequently disappointing. With true western insight, however, they speedily realized that the experience of the judges who had been supplied would prove a source of valuable information to them in their work, and they gladly availed themselves of the assistance which these men were only too glad to give.

As an illustration of the nature of the co-operation which has thus been developed, it may be noted that the judges have been requested to take a practical part in the organization of many of the local exhibitions. They have assisted in providing an effective classification of the stock, have prepared the judging programmes, have directed the laying out of the judging rings and have given advice regarding many points unfamiliar to the directors and exhibitors. Upon the completion of the fairs, they have, when requested to do so, furnished a statement to the management of different exhibitions in which, together with suggestions for its improvement, they have included recommendations with reference to the revision of the prize lists, alteration of the grounds, and to the framing of the programmes for future use. In the newer provinces work of this nature, where the organization of the fairs has been in its initial stage, is particularly acceptable. The rapid improvement from year to year in the management of the fairs and in the quality of the exhibits presented is a sufficient guarantee of its value.

FAT STOCK AND HORSE SHOWS.

Modelled upon the lines of the Guelph Fat Stock Show, these exhibitions are gradually becoming great educational centres and are drawing each year a larger number of visitors. In a newly opened up country the task of definitely establishing a type in the various classes and breeds and of securing proper consideration of quality is not by any means an easy one, and it is to the credit of the work which has been undertaken in the past that the entries now presented and the keen competition in the various sections compare most favourably with similar but older exhibitions elsewhere. The practical lectures, illustrated on the one hand by live animals and on the other by dressed carcases, have been found by the farmers to constitute a source of direct and useful information, and have influenced greatly the movement towards the securing of improved conditions in farm management and towards the maintenance of better live stock.

INSTITUTES.

While the problems of agriculture in the Canadian west very naturally differ from those which have necessitated attention in the east, representative farmers and stockmen of Ontario and Quebec have continued to be selected, in response to requests from the local Departments of Agriculture, to undertake institute work in the western provinces. These lecturers have been obliged to exercise much intelligence and common sense in adapting the presentation of their subjects to local conditions. The fact that their hearers, having frequently little experience of agriculture, look to them for direction and assistance and proceed to put into practice what they hear at the meetings has made this doubly imperative. That they have been able to render valuable service is evident by the reports which are received of their work.

In connection with the Saskatchewan Institutes, two-day judging schools have been held at many central points, and in the newly settled districts such demonstrations have been particularly effective. For these schools the animals required have been secured from the best local breeders.

Previous to 1907 similar schools were held in Alberta. In that year the Travelling Stock Judging School, described in the 1907-08 report, was instituted, and, during the months of January, February and March, has been continued in each subsequent year. In these schools, the practical work of teaching stock judging occupies the morning and afternoon sessions, while the evenings are devoted to the discussion of practical live stock subjects. The schools continue from three days to two weeks and draw large crowds, an attendance of 600 being not at all unusual. Through their agency a large number of people in widely separated districts have been effectively reached.

COMMENTS ON LOCAL CONDITIONS.

During the past three years the educational work in Northern Saskatchewan and in Alberta has been directed toward the encouragement of dairying and of swine raising. The supply of pork products in Western Canada has been and is insufficient to meet the home demand, and large quantities are continually being imported from eastern packing houses. Cheap feeds, good prices, and the steadily growing requirements of the domestic trade bid fair, however, to make hog raising a very profitable industry for some time to come.

Dairying is rapidly increasing in importance in the western provinces in view of the keen demand from the growing towns and cities for all products of the dairy. In the northern parts of both Alberta and Saskatchewan conditions are admirably suited to this branch of farming, and the special dairy lecturers who have been sent through these districts have accomplished a great deal in assisting to extend the industry and to improve the conditions attending it. The number of pure-bred bulls imported for use in grade herds has of late greatly increased, and many new pure-bred herds are being started, for use in which choice animals are being imported from Eastern Canada.

The beef industry in the western provinces is at present in the transition stage. The passing of the range and the consequent breaking up of most of the big herds is steadily transferring beef-raising to the small farms. This change will make possible the elimination of the injurious methods of breeding so prevalent under range conditions and the discontinuance of the still more suicidal practice of rushing to market, within the short space of three months, in a scarcely more than half-finished condition, the year's quota of cattle. Under the new conditions, and in a country where coarse grains are cheap, the practice of grain feeding and finishing will undoubtedly become general, while marketing will be distributed over the whole year.

The sheep population is not increasing very rapidly despite the growing demand and the uniformly good prices of the past few years, the keeping of sheep being confined chiefly to Southern Alberta and to a small corner of Southwestern Saskatchewan. The interest in sheep raising is growing, however, and those who are engaged in the industry report large yearly returns from the money invested. The fact that sheep prove themselves invaluable exterminators of weeds, which now entail such serious loss on western farms, is adding greatly to their popularity and is acting as an inducement to farmers to keep these useful animals. The sheep commissioners who recently visited all the western provinces, while predicting that range conditions cannot be maintained for any length of time, report encouragingly of the prospects for the extension and development of the industry through the keeping of sheep on the cultivated areas and through the adoption more generally of the practices of mixed farming.

The breeding of horses has steadily developed though not in proportion to the requirements of the trade. The demand for working horses is increasing in extent, notwithstanding the large yearly importations from eastern Canada and from the United States. One encouraging feature of the situation is the fact that more pure-bred studs are being started from year to year and stallions of better quality are being imported. The greatest improvement, however, is noticeable in the quality of the mares which are now available for breeding purposes, the inferiority of the female stock having hitherto been the weak link in the industry. Many good serviceable mares have now been imported and these have effected a very noticeable improvement in the young stock. The stallion laws enacted in these new provinces are proving very valuable, and, while there are still too many unsound nondescript stallions travelling this western country, the increasingly stringent precautions which are being adopted against their use cannot fail to ultimately retire them from service.

ASSISTANCE TO PROVINCIAL ORGANIZATIONS.

Various provincial bodies have for some years past been forming the habit of appealing to this Branch of your Department for financial support in connection with the management of certain important features of their agricultural policy. The past year has proven no exception in this regard. In recognition of the more than local or provincial stimulus and encouragement which has been given to our live stock interests through such institutions as Winter Fairs and Auction Sales of pure-bred stock, the response to these requests has usually been as favourable as could consistently be made. Co-operation of this nature can scarcely be viewed with anything but satisfaction and the benefits accruing to such expenditures have not been wanting.

In round figures something like $5,100 has been expended for purposes of this nature during the past year. Amongst other things assistance has been rendered to the Maritime Winter Fair, to the Provincial Live Stock Breeders' Association of Quebec in connection with an Auction Sale of sheep and swine and to the provincial organizations in Alberta, Saskatchewan and Manitoba through grants to their several Winter Fairs and in aid of the Auction Sales of pure-bred stock which were held under the management of these bodies in accordance with their usual custom. While the wisdom of asking for representation in the direction of these movements as a condition of the continuance of such assistance is now under consideration, the grants have hitherto been given direct, the only proviso attached being that the provisions of entry should be sufficiently broad to enable exhibitors and breeders from other provinces to participate in the advantages of the local undertaking.

PUBLICATIONS.

Report No. 2 of the Canadian Record of Performance was published during the past year and has been distributed not only to the addresses appearing on our regular mailing list but also in response to the many requests which have been received for it In view of the official records which it contains and in order to give them greater publicity, it is included as an appendix to this report.

The demand for the bulletin 'Swine Husbandry in the United Kingdom and Denmark' quickly exhausted the first addition, and, in consequence, the publication of a large second edition, both in English and French, has been found necessary. A second French edition of the bulletin 'Sheep Husbandry in Canada' has also recently been issued.

A new and attractive bulletin, compiled by Mr. J. B. Spencer, B.S.A., while connected with this Branch, has been published under the title 'Beef Raising in Canada,' and has already been largely distributed. In this publication concise but carefully considered descriptions, with illustrations, are given of the leading beef breeds. Following these the breeding, feeding and marketing of beef cattle are discussed in a comprehensive manner. The treatment of these features of the industry receives added value through the insertion of articles in which are included discussions of the conditions obtaining in different parts of the Dominion, in so far as they relate to beef production. The distribution of the bulletin has been received with much favour, and, since in its preparation, every effort has been made to secure the most accurate and reliable data available, I am hopeful that it will prove of considerable value to all interested in the subject.

The following gentlemen have contributed valuable information of which direct use has been made in compiling the publication and certain of them have furnished special articles upon certain phases of the industry. It seems fitting that acknowledgment should be made of the generous assistance which they have rendered.

ONTARIO.

Thos. McMillan	Seaforth.
J. Pickering	Brampton.
F. W. Fisher	Burlington.
Gavin Barbour	Omemee.
J. Ransford	Clinton.
Jos. Featherston	Streetsville.
G. B. Hood	Guelph.
John Low	Elora.
D. A. Forrester	Clinton.
John Campbell	Woodville.
Geo. L. Shipley	Falkirk.
C. M. Simmons	Ivan.
Wm. Elliott	Galt.
John Richardson	Wyoming.
Geo. R. Barrie	Galt.
J. C. Ovens	Maple Lodge.
A. W. Smith, M.P.	Maple Lodge.
Duncan Anderson	Orillia.
David McCrae	Guelph.
C. M. MacRae	Ottawa.
J. H. Grisdale	Director Dominion Experimental Farms, Ottawa.
Prof. G. E. Day	O. A. College, Guelph.
Biggar Bros	Trafalgar, Halton County.

QUEBEC.

Geo. H. Pierce	Richmond.
J. A. McClary	Hillhurst.
John Watson	Upper Melbourne.
Geo. T. Page	Upper Melbourne.

NOVA SCOTIA.

R. Robertson	Supt. Experimental Farm, Nappan.
Albert Laird	New Glasgow.
Robt. Kaulbach	Middle Musquodoboit.
T. R. Trotter	Antigonish.
F. L. Fuller	Agricultural College, Truro.
Murray Brothers	Pictou.

PRINCE EDWARD ISLAND.

Hammond J. Toombs	North Rustico.
James Mutch	South Rustico.
Frederick Bullman	Rusticoville.

SASKATCHEWAN.

A. G. Hopkins, B. Agr., D.V.M.	Regina.
Hugh Kippen	Arcola.
W. H. Bryce	Arcola.
R. J. Phin	Moosomin.

ALBERTA.

Wm. Sharpe	Lacombe.
W. F. Puffer, M.L.A	Lacombe.
John Ross	Pincher Creek.
T. W. Bannister	Bow Valley Ranch, Calgary.
G. H. Hutton	Supt. Experimental Farm, Lacombe.
W. E. Ross	Lacombe.

BRITISH COLUMBIA.

S. F. Tolmie, V.S	Victoria.

MANITOBA.

Geo. H. Greig	Winnipeg.
Wm. Grayson	Newdale.
J. R. Hume	Souris.
A. R. Speers	Griswold.
Jos. Donaldson	Brandon.
Wm. Sharp	
G. H. Bradshaw	Morden.
Sir Wm. Van Horne	East Selkirk.
J. R. Horne	Souris.
J. L. Cook	Newdale.

NATIONAL LIVE STOCK RECORDS.

The relationship existing between the National Live Stock Records and this Branch of your Department is gradually becoming more generally understood. A specially appointed officer of the Branch, in accordance with the provisions of the Pedigree Act, supervises the issuance of the registration certificates, and, after satisfying himself that each pedigree as issued has been made out in accordance with the information supplied in the corresponding application, affixes the seal of the Department to the document and then attaches his signature thereto. In addition to the duties of this officer, whose whole time is devoted to the work, much assistance continues to be given to the Records Office. Office accommodation is provided by the Branch for the Records Staff, and, in addition, office furnishings and stationery. An annual grant of $7,500 is also placed at the disposal of the Record Committee under certain restrictions as to its expenditure. While the conditions imposed in connection with the assistance thus given are very slight indeed, the objects sought are being, in a large measure, accomplished. These may be briefly defined as the proper superintendence of the official records and the prevention of any serious embarrassment to the weaker associations incorporated with the National System.

The Annual Report of the Record Committee for the calendar year 1910 appears as an appendix to this Report.

An important advance has been made during the past year in materially strengthening the office staff, through the appointment of additional registrars and the engagement of further clerical assistance. In view of the steady increase which has already taken place in the volume of work annually handled by the Records Office and of that which may confidently be expected in the future, the responsibility of its administration necessitates the employment, under the accountant, of capable and expert assistants to assume a practical and important share in the direction of its various branches. Upon my recommendation, young men, recently graduated from the Ontario Agricultural College, were selected for the registrarship above indicated and

the wisdom of this policy has already been fully demonstrated. It is evident that, while the National Records System has passed the experimental stage, its future development is likely to be such as to warrant the most careful provision being made, not only to safeguard the accuracy of its records but to ensure the utility of its service to the various associations incorporated under it.

OFFICERS OF THE HEALTH OF ANIMALS AND LIVE STOCK BRANCHES.

J. G. Rutherford, C.M.G., V.S., H.A.R.C.V.S., Veterinary Director General and Live Stock Commissioner.

George Hilton, V.S., Chief Veterinary Inspector, Ottawa, Ont.

R. Barnes, V.S., Chief Meat Inspection Division, Ottawa, Ont.

A. E. Moore, D.V.S., Chief Travelling Inspector, Ottawa, Ont.

C. D. McGilvray, M.D.V., Winnipeg, Officer in Charge Manitoba.

D. Tamblyn, D.V.S., Regina, Officer in Charge Saskatchewan.

J. C. Hargrave, D.V.S., Medicine Hat, Officer in Charge Alberta.

S. F. Tolmie, V.S., Victoria, Officer in Charge British Columbia.

J. A. Couture, D.V.S., Superintendent Animals' Quarantine Station, Quebec, Que.

J. H. Frink, V.S., Superintendent Animals' Quarantine Station, St. John, N.B.

H. S. McFatridge, V.S., Superintendent Animals' Quarantine Station, Halifax, N.S.

W. H. Pethick, V.S., Officer in Charge Prince Edward Island.

Pathological Staff:—

C. H. Higgins, D.V.S., F.R.M.S., Ottawa, Ont.

S. Hadwen, D.V.S., Mt. Lehman, B.C.

E. A. Watson, V.S., Lethbridge, Alta.

T. C. Evans, B.V.Sc., Ottawa, Ont.

A. B. Wickware, V.S., Ottawa, Ont.

Veterinary Inspectors:—

G. H. Acres, V.S., Marienthal, Sask.

M. C. Baker, D.V.S., Montreal, Que.

E. P. Ball, D.V.S., Rock Island, Que.

J. E. Beaudry, M.V., Sherbrooke, Que.

G. H. Belaire, V.S., Pembroke, Ont.

G. W. Bell, V.S., Kingston, Ont.

B. A. Bescoby, V.S., Winnipeg, Man.

J. W. Bland, V.S., Vancouver, B.C.

A. Brown, V.S., Sarnia, Ont.

J. C. Bonnett, M.R.C.V.S., Snowflake, Man.

G. R. Brewster, V.S., Claresholm, Alta.

A. N. Busselle, V.S., Macleod, Alta.

H. A. Brown, V.S., Victoria, B.C.

M. Barker, V.S., Saskatoon, Sask.

J. W. Black, V.S., Swift Current, Sask.

A. E. Cameron, V.S., Moosejaw, Sask.

J. H. Caldwell, V.S., Edmonton, Alta.

H. S. Cawsey, V.S., Camrose, Alta.

T. Chalmers, M.R.C.V.S., West New Annan, N.S.

N. D. Christie, V.S., Wood Mountain, Sask.

V. V. Christie, V.S., Twin Lakes, Alta.

Veterinary Inspectors—Continued—

G. C. Cockerton, V.S., Regina, Sask.
D. Coristine, V.S., Osoyoos, B.C.
S. A. Coxe, V.S., Brandon, Man.
A. J. R. Cromwell, V.S., Coaticooke, Que.
K. Chester, V.S., Huntingdon, B.C.
H. L. Dixon, V.S., Regina, Sask.
A. Dufresne, M.V., Regina, Sask.
J. D. Duchene, M.V., Quebec, Que.
T. R. Duchene, M.V., Chicoutimi, Que.
J. W. Frank, V.S., Nelson, B.C.
D. B. Fraser, V.S., Port Arthur, Ont.
W. J. R. Fowler, V.S., Toronto, Ont.
K. R. Foster, V.S., Gateway, B.C.
M. V. Gallivan, V.S., Kamloops, B.C.
H. Gauvin, M.V., Quebec, Que.
J. O. Guy, M.V., St. Johns, Que.
J. H. George, V.S., Calgary, Alta.
J. C. Hargrave, D.V.S., Medicine Hat, Alta.
A. Hawes, M.R.C.V.S., White Horse, Y.T.
J. R. Hawke, V.S., Medicine Hat, Alta.
C. Head, M.D.C., Regina, Sask.
D. Henderson, V.S., Toronto, Ont.
G. W. Higginson, V.S., Rockland, Ont.
J. B. Hollingsworth, D.V.S., Ottawa, Ont.
J. T. M. Hughes, M.R.C.V.S., Gleichen, Alta.
J. B. Harrington, V.S., Lacombe, Alta.
A. E. James, V.S., Ottawa, Ont.
G. W. Jemison, V.S., Maple Creek, Sask.
G. S. Jermyn, V.S., Bridesville, B.C.
F. A. Jones, V.S., Windsor, Ont.
B. B. Killam, D.V.S., Yarmouth, N.S.
J. Kime, jr., V.S., Chatham, Ont.
A. A. Leckie, M.R.C.V.S., Charlottetown, P.E.I
T. E. LeClaire, V.S., High River, Alta.
C. Little, V.S., Winnipeg, Man.
W. Little, V.S., Boissevain, Man.
A. Lesperance, M.V., Willow Creek, Sask.
J. A. McLeish, V.S., Prince Albert, Sask.
D. McAlpine, D.V.S., Brockville, Ont.
H. McCarthy, V.S., Castor, Alta.
D. H. McChesney, V.S., Sault Ste. Marie, Ont.
A. McCormick, D.V.S., Ormstown, Que.
D. McCuaig, V.S., McAdam Junction, N.B.
C. McEachran, D.V.S., Montreal, Que.
D. McEachren, D.V.S., Montreal, Que.
A. McEwan, V.S., Red Deer, Alta.
C. D. McGilvray, M.D.V., Winnipeg, Man.
W. C. McGuire, D.V.S., Cornwall, Ont.
A. M. McKay, V.S., Calgary, Alta.
W. H. McKenzie, M.D.V., Emerson, Man.
J. C. McMurty, V.S., Moosejaw, Sask.
A. McMillan, V.S., Brandon, Man.
G. H. McVeigh, V.S., Stettler, Alta.

Veterinary Inspectors—Continued—

H. McCullough, V.S., Cobourg, Ont.
A. McTaggart, V.S., Fort Frances, Ont.
R. MacAfee, V.S., Macleod, Alta.
D. Macmillan, V.S., Calgary, Alta.
W. Mitchell, V.S., Kingsgate, B.C.
W. Moynihan, V.S., Toronto, Ont.
W. H. Mustard, V.S., Calgary, Alta.
H. S. Manhard, V.S.,Big Muddy, Sask.
W. G. Moore, V.S., Didsbury, Alta.
E. C. Oliver, V.S., Toronto, Ont.
N. P. Olsen, V.S., Saskatoon, Sask.
W. T. Patton, V.S., Coutts, Alta.
J. D. Paxton, V.S., Midway, B.C.
M. B. Perdue, V.S., Toronto, Ont.
M. Philps, V.S., Bridgeburg, Ont.
G. C. Pinhorn, V.S., Pendant d'Oreille, Alta.
B. R. Poole, V.S., Estevan, Sask.
J. W. Purdy, V.S., Ottawa, Ont.
S. Ransom, V.S., Vancouver, B. C.
C. R. Richards, M.D.C., Victoria, B.C.
R. Riddell, V.S., Calgary, Alta.
W. B. Rowe, V.S., Blenheim, Ont.
J. C. Rusk, V.S.. Lethbridge, Ont.
W. A. Shoults, V.S., Winnipeg, Man.
J. A. Stevenson, V.S., Gretna, Man.
J. B. Still, M.D.V., Buchanan, Sask.
W. W. Stork, V.S., Brampton, Ont.
W. Stubbs, V.S., Caledon, Ont.
B. A. Sugden, D.V.S., Montreal, Que.
P. R. Talbot, V.S., Calgary, Alta.
D. Tamblyn, D.V.S., Regina, Sask.
J. H. Tennent, V.S., London, Ont.
H. N. Thompson, V.S., Bannerman, Man.
W. Thomson, V.S., Vancouver, B.C.
E. C. Thurston, D.V.S., Sydney, N.S
S F. Tolmie, V.S., Victoria, B.C.
F Torrance, D.V.S., Winnipeg, Man.
G. Townsend, D.V.S., New Glasgow, N.S.
J. H. Vĭgneau, M.V., Three Rivers, Que.
C. E. Waddy, V.S., Strathmore, Alta.
D. Warnock, M.R.C.V.S., Pincher Creek, Alta
T. E. Watson, V.S., Niagara Falls, Ont.
J. D. Whyte, D.V.S., Sherbrooke, Que.

Inspectors of Cars and Yards:—

J. F. Robb, Portage la Prairie, Man.
L. L. Cooke, Ottawa, Ont.
J. Devlin, St. John, N.B.
T. G. Ferris, Windsor, Ont.
M. Guindon, Windsor, Ont.
G. M. Harris, Lethbridge, Alta.
A. Kington, Revelstoke, B.C.
W. Kinnimonth, Vancouver, B.C.

Inspectors of Cars and Yards—Continued—

W. Long, Montreal, Que.
T. B. McCreery, Windsor, Ont.
A. McDonald, Toronto, Ont.
J. B. Miller, Strathcona, Alta.
F. R. Morris, Cranbrook, B.C.,
W. Nisbit, Sarnia, Ont.
J. Oliver, Windsor, Ont.
J. Paterson, Toronto, Ont.
A. E. Rice, Montreal, Que.
H. E. Ridgedale, Winnipeg, Man.
W. E. Troup, Niagara Falls, Ont.
J. E. Wilson, Calgary, Alta.
B. Yake, Moosejaw, Sask.

Lay Inspectors:—

S. B. Fuller, Ottawa, Ont.
C. H. L. Sharman, Ottawa, Ont.
T. M. Morgan, Medicine Hat, Alta.
J. W. Dempster, Forty Mile, Y.T.

Range Riders, Alberta and Saskatchewan:—

M. F. Ashbee,
W. G. Armstrong,
A. Auger,
H. F. Baker,
L. Borden,
W. H. Daly,
W. H. Dickson,
E. N. McDuffee,
H. M. McNaughton,
A. Murphy,
W. D. McLennan,
W. J. Moran,
D. B. Martin,
J. C. Oswald,
I. Sterling,
V. Shaw,
T. Scott.
A. J. Tennent.
D. White.
W. Ellis.

Caretakers and Employees at Quarantine Stations:—

W. Devlin, St. John, N.B. (also car inspector).
R. Ward, Halifax, N.S.
W. Walsh, Quebec, Que.
D. Bégin, Quebec, Que.
G. Gagnon, Quebec, Que.
J. Halle, Quebec, Que.
J. Patry, Quebec, Que.
C. White, Lennoxville, Que.
R. Fee, Ottawa, Ont.
E. Dolsen, Bridgeburg, Ont.

Caretakers and Employees at Quarantine Stations—Continued—

R. MacGregor, Sarnia, Ont.
M. Menzies, North Portal, Sask.
A. Hardy, Lethbridge, Alta.
W. Kinnimonth, Vancouver, B.C. (also car inspector).

A list of the veterinary and lay inspectors employed under the Meat and Canned Foods Act wil be found on pages 51 and 52, as stationed at the various establishments under inspection.

CLERICAL STAFF.

HEALTH OF ANIMALS BRANCH.

Contagious Diseases Division:—

G. Hilton, V.S., Chief Veterinary Inspector, Ottawa, Ont.
A. E. Moore, D.V.S., Chief Travelling Inspector, Ottawa, Ont.
C. H. L. Sharman, Ottawa, Ont.
J. W. Purdy, V.S., Ottawa, Ont.
A. Mackie, Ottawa, Ont.
M. R. C. Smith, Ottawa, Ont.
R. H. L. Uglow, Ottawa, Ont.
B. M. Bayless, Ottawa, Ont.
M. Dewar, Ottawa, Ont.
B. Drummond, Ottawa, Ont.
D. St. George, Ottawa, Ont.
J. F. Grant, Ottawa, Ont.
A. F. O'Connell, Regina, Sask.
J. C. Porter, Medicine Hat, Alta.
W. M. Cresswell, Regina, Sask.
B. M. Crawford, Medicine Hat, Alta.
H. G. Clarke, Ottawa, Ont.
J. Hutchingame, Ottawa, Ont.

Meat Inspection Division:—

R. Barnes, V.S., Chief Meat Inspection Division.
J. Audley,
A. Gowling,
L. B. Emery, M.A.,
T. Mahon.

Live Stock Branch:—

H. S. Arkell, B.S.A., Asst. Live Stock Commissioner.
W. A. Clemons,
C. M. MacRae,
D. Drummond,
G. W. Clemons,
T. H. Mason,
W. H. McNish,
} Inspectors Record of Performance.
H. Fairbairn,
L. F. Boulet,
L. Brown,
J. G. Bonneville.

The wisdom of the arrangement by which in 1906 the activities of the Health of Animals and Live Stock Branches were combined under one head becomes yearly more apparent. These Branches which formerly crossed and overlapped each other to a regrettable degree, now work harmoniously together and by this co-operation achieve infinitely better results, while at the same time effecting a very appreciable saving in salaries and other expenses.

I have the honour to be,
Sir,
Your obedient servant,

J. G. RUTHERFORD,
Veterinary Director-General and Live Stock Commissioner.

To the Honourable Sydney Fisher,
Minister of Agriculture,
Ottawa.

APPENDIX No. 1.

G. Hilton, V. S.,
Chief Veterinary Inspector,

Ottawa, March 31, 1911.

Sir,—I beg to submit herewith my report for the year ending March 31, 1911.

My duties during the major portion of the period, were confined to the western provinces but, principally, to Saskatchewan.

In accordance with instructions, I visited the North Portal Quarantine Station early in the month of April, and investigated several matters requiring attention. Settlers were arriving, with their stock, in sufficient numbers to seriously tax the railway company's transportation facilities. The temporary congestion, which occurred at times, was apparently due, partly, to the tendency on the part of the railway company to bring cars of stock, which had already complied with the regulations, to the quarantine yards, to lack of system, and to inadequate trackage.

The work of inspection and testing was well organized, and was performed satisfactorily and with despatch. All possible steps were being taken to prevent any unnecessary delay, and the Customs and railway officials were co-operating with your inspectors in a very creditable manner. The inspection of stock, upon their arrival at the boundary, and the examination of charts accompanying them, was allotted to one inspector, who, while assisting in other work when possible, was always available for this particular purpose. By this means the number of all cars required at the quarantine yards, as also those containing animals, in connection with which the quarantine regulations had been complied with, were placed in possession of the railway officials at the earliest possible moment.

The increased accommodation at this point, provided by the erection of three additional stables, was, apparently, quite adequate during the spring rush, and afforded every possible comfort for the settlers' stock. Some inconvenience was occasionally experienced, owing to the difficulty of procuring water for the stock. This was due to the fact that the railway company, although hauling water for this purpose in tanks from Roche Percee, frequently placed these in inconvenient locations instead of spotting them on the quarantine side track. This matter was, however, brought to the attention of the railway officials, who took the necessary measures promptly to prevent the possibility of its recurrence.

A great deal of trouble has been experienced in the endeavour to secure a permanent water supply at this station, and, while everything possible has been done to facilitate the well-boring operations, the progress made has been anything but satisfactory. Three different outfits have already been engaged for this work, two of which remained on the ground for some considerable time without success. The railway company finally secured the services of an apparently competent well-borer, with a modern boring outfit; but, owing to extreme climatic conditions, little headway has so far been made.

While at this point, I investigated a complaint forwarded by the Royal North-West Mounted Police, relative to suspected sales, and exchanges, of rejected diseased horses, but, after careful inquiry, I was unable to find any satisfactory evidence supporting the report in question. There is no doubt, however, that contact horses are occasionally sold, or exchanged on the American side of the boundary, while

awaiting the necessary period for a re-test, but the regularity with which these animals are again presented for entry would indicate that transactions of this nature are very limited.

The system followed by your officers, together with the valued and energetic co-operation of the Bureau Inspector, stationed at South Portal, was all that could be desired, and enabled them to effectually control all rejected animals. These were branded on the nigh front hoof, and returned to South portal, where they were promptly taken in charge by the Bureau officer. They were isolated by him, for thirty days, in a building specially erected for the purpose, upon the expiration of this period submitted to mallein, and finally dealt with as provided by the state laws.

The unfortunate reports circulated through the press, intimating the practice of dishonest methods in dealing with the settlers at this point, must have originated from unreliable sources, as, during my prolonged stay, conversing with the numerous settlers, from day to day, with but one exception of a trivial nature, I was unable to find any evidence to justify the reports on this side of the boundary. The implicated officer was promptly suspended, this being later confirmed, and his services permanently dispensed with.

Upon completion of this work, I left North Portal for Regina, and, shortly after my arrival, proceeded to Medicine Hat, where I discussed with Dr. Hargrave, matters pertaining to the work in his province. While there I received instructions from you to return to North Portal, and investigate a serious charge, embodied in a sworn statement made by three settlers, against one of your officers at that point. On arrival I found that the solicitor, engaged in the preparation of the statement in question, knew nothing of the charges, or the individuals making them, beyond his professional services in the case.

Further action was delayed, owing to the fact that the complainants had proceeded to their homesteads in the southwestern portion of the province, and that the accused officer had been moved to a distant point on the boundary. I was able eventually, however, to make a comprehensive inquiry into the matter, and to establish, positively, the falsity of the charges. The complainants finally acknowledged that their statements were not in accordance with the facts.

Before returning to Regina I visited the Marienthal inspection port, and consulted Inspector Acres relative to matters pertaining to this post, the particulars of which were forwarded to you.

In compliance with further instructions, I remained at Regina, and assisted Dr. Hopkins with many matters requiring attention in Saskatchewan.

The force in this province was increased in the early part of the summer, six inspectors arriving from the east and two being transferred from Manitoba. The eastern men, having had no experience in our work, and being unfamiliar with the proper use of the official forms of your Branch, were, after a reasonable initiation with experienced men in the field, moved to points, where their services could be used to the best advantage.

I left Regina for Winnipeg on the evening of June 30, where I met you, as previously instructed, for consultation in connection with the work in Saskatchewan.

Leave of absence having been granted to Dr. Hopkins on July 1, I assumed charge of the work in Saskatchewan upon my return to Regina, and, owing to the acceptance of his resignation upon the completion of his leave, I remained in charge until a substitute was appointed. At this period one of your other officers in this province resigned, for private reasons, and a little later another inspector severed his connection with your Branch for the same cause.

On July 24, a very regrettable accident befell Inspector Ayre, who, while driving out of Regina on duty to investigate a reported case of glanders, was thrown from his conveyance and injured to such an extent that he died on December 1. As this officer's duties consisted principally in the keeping of records in the office it was necessary to

make immediate arrangements for the carrying on of this work. I was fortunately able to secure Inspector Robb's services in this connection until you visited Regina and authorized the engagement of a clerk for this particular work. Mr. A. F. O'Connell, of Regina, was offered this position which he accepted, and commenced his duties on October 27.

Inspector Whyte, of Sherbrooke, Que., reported for temporary duty on August 13. This officer performed a great deal of important, urgent work in a very satisfactory manner, during his short stay in this province.

Some trouble having arisen between the Doukhobors and the inspector engaged in testing their horses, I found it necessary to proceed, on September 7, to Canora and Verigin, where I met the inspector and with him consulted Mr. Cazakoff, the manager of the Doukhobors, regarding the matter. I found that the difficulty was due to bad judgment on the part of your officer, in dealing with these people, which resulted in their loss of confidence in him and his decisions. Mr. Cazakoff assured me that the Doukhobors were quite willing to have all their horses tested and dealt with as provided by the regulations, and were eager to lend all possible assistance to an officer in whom they had confidence.

As harvest was in progress further testing was delayed but, as soon as this was completed, another inspector was detailed to take the place of the officer referred to. All horses in the numerous villages were carefully inspected, and, where circumstances warranted, submitted to mallein. No further trouble was experienced, the Doukhobors assisting very materially in this work.

My attention having been previously drawn by you to the very limited number of contact horses found to be diseased in proportion to the number of cases destroyed by one of your officers, I discussed this matter with the Chief Travelling Inspector of the province. Arrangements were made for him to visit this particular district, to institute inquiries, with a view to tracing and testing possible contacts, so as to determine positively whether or not these outbreaks had been thoroughly and effectively dealt with. Upon his return to Regina he reported strong suspicions of serious dishonest transactions. I, therefore, immediately wired you for the services of a special officer, to make an investigation, and asked for the deferment of payment of all compensation moneys, covering slaughter certificates issued by the inspector in question. The case was investigated as promptly as possible, and the officer held, pending your contemplated visit to Regina. On your arrival on October 12, the case was laid before you, and arrangements made for his arrest and prosecution. The officer in question was finally brought before the courts, convicted, and owing to the fact that full restitution had been made, sentence was limited to three years in the penitentiary. Two other parties found to be implicated with this officer were also convicted and sentenced to terms in the local jail. A complaint against one of your inspectors was received during the latter part of September. This was promptly investigated, and the officer suspended on the 22nd of that month. As this officer had been suspended on previous occasions for similar offences the suspension was confirmed and he was finally dismissed from the service.

The tracing and testing of settlers' horses, which were allowed, for various reasons, to proceed to destination, under special license, took a great deal of time, and necessitated many long and arduous journeys. This was due to the fact that the settlers quite frequently take up homesteads in entirely different locations to those given your officers at the boundary. They were, however, with few exceptions finally located and dealt with.

Suspicion having been directed to the unbroken range horse, as the cause of several serious outbreaks of glanders, you decided to submit to mallein as many of these animals as practicable at the spring roundup, and also those presented for shipment at points between Winnifred, Alta., and Swift Current, Sask. This kept your officers busily engaged, and diverted the attention of a number of them for some

time from their regular field duties. The spring roundups were completed early in June, and as these animals are only held for a limited period, which this year was still more limited, owing to the dry season, resulting in a scarcity of feed, four inspectors, who possessed experience with range horses and range conditions, were detailed for this work. The progress made under these conditions was naturally slow, but the testing was carried out in a careful and intelligent manner. Although surrounded by difficulties and the discomfort of working in the intense heat amidst clouds of sand and insects, about 1,300 horses were tested, twenty-five of which reacted and were destroyed.

The accuracy with which the mallein test picked out horses that originated from old diseased herds, was much appreciated by the ranchers. Many of them signified their willingness to build necessary facilities, at convenient locations for the testing of their horses upon the completion of the next roundup.

The horses tested were those limited to a small chosen area, and which under ordinary conditions, were contacts on the same range. They do not, however, comprise all the horses in the said area. There are several bunches which owing to the limited time, could not be tested, as in order to put them in fit condition for the winter months it was essential to turn them loose on the range. It was, therefore, in view of existing conditions, quite unreasonable to insist on their being held any longer.

Upon the completion of this work, one of the inspectors was transferred to Alberta, while the others returned to their respective headquarters, where a great deal of urgent work awaited them.

The control and eradication of glanders in this province is still a serious problem. Numerous suspected cases are reported persistently, many of which are confirmed upon investigation. Several large outbreaks were dealt with in the vicinity of Regina and Moosejaw, the source of infection in some, pointing to the range horse, in others, to old, so-called, ceased reactors, which had been released, and lost sight of before your present policy was adopted. It is, however, encouraging to note the very marked decrease of cases on the Arcola and Soo lines, where only a few years ago this disease was sufficiently prevalent to warrant the constant employment of a number of your most experienced men for a lengthy period.

In view of the fact that you found it expedient to transfer to Dr. Hargrave the supervision of the cattle mange restrictions in the limited area, in the southwestern portion of this province, the Saskatchewan inspectors have been able to direct their attention, very largely to dealing with outbreaks of glanders and mange in horses. The latter disease, fortunately, does not exist to a serious extent. Several small outbreaks were dealt with in different parts of the province, and a more serious one on the Arcola Line, which caused considerable trouble and resulted in the prosecution and conviction of a horse dealer for a violation of the quarantine regulations.

Dr. McGilvray, having been instructed to meet you at Regina, did so on the 13th of October. The conditions in Saskatchewan were discussed, and arrangements made for him to visit Regina at regular intervals, this being considered advisable until Dr. Tamblyn, whom you decided to place in charge became familiar with the conditions peculiar to this province.

Dr. Tamblyn arrived from Vancouver on October 29, and after a few days' initiation, assumed charge of the province. I therefore, left Regina for Ottawa on November 2.

In the month of January I visited the ports of Niagara Falls, Bridgeburg, Windsor and Sarnia, and investigated several matters requiring attention.

A case of rabies having developed in the southeastern portion of the Niagara Peninsula, I proceeded there in the latter part of March. I was met at Toronto by Dr. Stork, who accompanied me. We discussed with the municipal authorities in the territory concerned, matters pertaining to the enforcement of precautionary

measures. Your views regarding the responsibility resting upon municipal bodies in connection with the protection of public health were fully explained, as also your policy in dealing with outbreaks of rabies. After considering the situation they finally decided to pass and enforce immediately muzzling by-laws in their respective districts.

I have the honour to be, sir,
Your obedient servant,

GEORGE HILTON.

Dr. J. G. Rutherford, C.M.G.,
Veterinary Director General,
Ottawa.

APPENDIX No II.

R. Barnes, Chief, Meat Inspection Division.

Ottawa, March 31, 1911.

Sir,—I have the honour to submit herewith my annual report of the work carried on under the provisions of the Meat and Canned Foods Act, for the year ending March 31, 1911.

While the work of this division has been performed during the past twelve months in a manner which has provoked little public comment, it is by no means to be understood that the requirements of the Act and the regulations are not being observed, but, rather, that the willing submission of the managements of establishments which come within its operation and the tactful manner in which the majority of the officers have performed their duty have been conducive to harmony.

Fifty-nine veterinarians presented themselves at the examinations conducted by this Branch in order to qualify for appointments as inspectors, of whom forty-two were successful in obtaining the required number of marks. Nearly all of the successful candidates have since entered the service, which, however, owing to the increase in the number of animals slaughtered and of new establishments placed under inspection, is still without a sufficient complement of inspectors.

Following the amendment of the Meat and Canned Foods Act, which was effected at the session of 1909-1910, the regulations governing the inspection of meats were very carefully revised, this being necessary in order to bring them into conformity with the new provisions.

The regulations regarding the sanitary conditions of establishments have been fairly well observed. While a remarkable improvement can be seen over conditions as they existed at the commencement of inspection, I am hopeful of still further advancement along this line as, in the case of the majority of the plants, the construction of the buildings and the appliances used therein were by no means modern. Extensive alterations have been, and are being, made to a number of the establishments, in connection with which the most suitable materials are being used, and the methods of construction are such as will tend to the maintenance of the required sanitary conditions with little cost and inconvenience to the management.

The total number of meat food animals slaughtered under inspection shows an increase of 413,105, the most noticeable increase being in swine, of which 271,300 more

were killed than in the previous year. In spite of this fact, our exports have not grown correspondingly, which may be attributed to an increased home consumption and to the low prices obtainable in the foreign markets.

The statistics for the year show, as in previous reports, that tuberculosis exists in our meat food animals to such an extent as to cause fear as to the future unless those interested in the production of live stock become seized of the seriousness of the situation and unite to evolve and carry out measures for, at least, the control and, if possible, the eradication of this disease.

I am glad to know that you have taken steps with the view of bringing about in the near future an improvement in the conditions under which the transportation of animals is carried on. This is a matter of very great importance to persons engaged in the shipping and slaughter of live stock, in view of the fact that twenty per cent of the total loss on swine and thirty per cent of that on sheep is due to the number of animals found dead in the cars upon arrival at the yards of the establishments. It is to be regretted that it has been found necessary to condemn as unfit for food so many entire carcases, as well as thousands of portions, for bruises, which I am of the opinion could have been avoided by the exercise of ordinary care and judgment on the part of the drovers and employees of transportation companies, thereby preventing the severe monetary loss suffered by those directly interested, and reducing to a minimum the cruelty and hardship inflicted upon the animals themselves.

Since the inauguration of the work in September, 1907, the utmost leniency has been shown in the administration of the Act and regulations, and an earnest endeavour has been made to educate those affected, to observe its requirements, It has been found necessary, however, to enter actions against certain individuals and corporations for different offences, such as the illegal and improper use of the Inspection Legend and the illegal movement of meat and meat food products. In every instance a conviction was secured and a fine imposed.

The general health of the officers has been good, especially in view of the nature of the work performed, which, as you are aware, requires their constant attendance for ten hours a day and, in the busy season during the fall months, often necessitates their working daily from two to six hours extra under conditions which are little understood by the average individual unacquainted with the manner in which the slaughter of animals is carried on in the large establishments. The annual vacations granted are much appreciated by the officers and, as far as possible, are taken during the hot weather as at that season the killings are lighter than at any other time, thereby rendering it possible to carry on the work without any special addition to the number of inspectors employed.

FRUITS, VEGETABLES AND MILK.

During the year the new regulations governing the inspection of preserved fruits, vegetables and milk, made under the provisions of the Meat and Canned Foods Act, were drafted. Before bringing them into actual operation, which was done by Order in Council under date of July 6, 1910, all firms engaged in this trade of which we then had knowledge, were asked to attend a meeting in the office of the Deputy Minister, on June 22, for the purpose of discussion. The attendance at this meeting was fairly representative, the larger packers being present, and, judging from the interest taken in the discussion of matters relating to improved sanitary measures and the production of high class articles honestly labelled, little difficulty will be experienced in the administration of the regulations.

A vast improvement is noticed in the manner in which these establishments are conducted. Buildings are kept much cleaner, whitewash and paint are being more liberally used, floors, machinery and utensils are more frequently cleaned, the employ-

ees are required to keep themselves and their clothing clean, proper systems of drainage are being installed, and yards are, in majority of cases, kept in a creditable manner.

It is gratifying to note that cases of illness and ptomaine poisoning due to the consumption of canned foods are extremely rare, owing to the cleanly manner in which such products are now prepared. The use of injurious preservatives is entirely discarded by the modern canner, as such aids are not required where all steps in the process of manufacture are carried on under strict sanitary conditions and surroundings, sterilization by heat being sufficient to ensure the keeping of the products in a sound, wholesome and palatable condition for an almost indefinite time.

To the scientific manner in which the canning of foods is carried on to-day, by which the processor is able to preserve the natural flavour and appearance, and also to the convenience with which they may be procured by the general public and the moderate price, may be ascribed the large increase in the consumption of foods of this class.

The greatest difficulty is experienced in connection with the apple evaporators, many of the buildings being faulty in construction and the managements in some cases being anything but alive to the requirements of the regulations or to what is meant by sanitation. The inspectors have pointed out to them the necessary changes and have given them much helpful advice in order that, before the commencement of operations for the coming season, they may have their plants in the desired condition and be able to keep them so during the time they are working.

I have the honour to be, sir,
Your obedient servant,

ROBT. BARNES,
Chief, Meat Inspection Division.

Dr. J. G. RUTHERFORD, C.M.G.,
Veterinary Director General,
Ottawa.

APPENDIX No. III.

A. E. Moore, D.V.S., Chief Travelling Inspector,

Ottawa, March 31, 1911.

Sir, I have the honour to submit to you this, my annual report, for the year ending March 31, 1911.

GLANDERS.

I am pleased to again report this year a marked decrease in the number of cases of glanders found in the eastern provinces.

I have personally tested 30 horses, six of which reacted; five of these diseased ones, however, were from the same lot, namely a small lumber camp in Northern Ontario. Of the twenty-four horses which did not react, thirteen were contact animals, and the eleven remaining cases, which were reported by veterinarians in different parts of the eastern provinces, I found to be suffering from the following maladies:—

5 from diseased teeth,
3 from nasal gleet,
1 from emphysema,
1 from erysipelas,
1 from grease heel.

At different times during the year I have examined many horses clinically. I did not see even a suspicious case.

During the year I tested 14 import horses—4 at Sault Ste. Marie, 7 at Sherbrooke, and 3 at Ottawa. There were no reactions.

HOG CHOLERA.

A small outbreak of hog cholera occurred in Essex county, Ont., eight premises were quarantined and 104 hogs were destroyed. I also found hog cholera on one farm at Wallaceburg, Ont., where 14 hogs were slaughtered. I instructed Inspector Rowe to complete the investigation with reference to these cases and no further outbreaks have occurred.

I also investigated several reports of suspected hog cholera, which were sent in by local veterinarians, and found the trouble in each case was due to injudicious feeding.

SHEEP SCAB.

In July I examined all the sheep at Aurora and Morpeth, Ont., which were officially treated for scabies in the spring of 1910. All were completely cured and the disease entirely eradicated.

During the winter an outbreak of scabies was reported by our inspectors at Winnipeg, and as there was some suspicion attached to a shipment of sheep sent to Winnipeg from Thessalon, Ont., I closely inspected all the sheep where this shipment was collected, examining 280 sheep on twenty-five different farms, but did not find any evidence of scabies.

Early this spring it was reported that there was some skin disease in sheep at the parish of La Baie, P.Q. I visited this place in company with Inspectors Vigneau and Gauvin, where I discovered several flocks affected with scabies. As all the sheep in this neighbourhood pasture on a large common, I found it necessary to quarantine, and to order them all to be dipped under our supervision.

TUBERCULOSIS.

During the year I have tested 312 cattle, 8 of which reacted. These comprise four herds, which are under the special supervision of the Department.

I also tested nine cattle, which were bought subject to the test for the Experimental Farms; five of these reacted and one proved suspicious.

I earmarked fourteen cattle on seven farms; these cattle were tested by local veterinarians, supplied with tuberculin from this Branch.

TESTING CATTLE FOR EXPORT TO THE UNITED STATES.

I tested 86 cattle for export to the United States, three of which reacted and were properly earmarked.

MANGE IN HORSES.

A number of outbreaks of mange in horses were seen during the spring and summer, especially in the Eastern Townships of the province of Quebec. All cases were quarantined and have been successfully treated under our supervision.

MANGE IN CATTLE.

Three small outbreaks of mange in cattle were discovered in Western Ontario during the year; each was traced to shipments of western cattle sold to farmers for feeding purposes. There were no serious losses, as cattle were only slightly affected, and readily responded to hand treatment which was applied under the direct supervision of the Inspectors.

ANTHRAX.

I have dealt with two small outbreaks of anthrax this year. Five cattle and one horse died on one farm and three cattle on the other. The remaining animals on these farms were vaccinated and the carcases of those that died were all cremated. These outbreaks occurred near Berthier, Que., where the disease has existed from time to time for some years.

HÆMORRHAGIC SEPTICÆMIA.

Only one outbreak of hæmorrhagic septicæmia came to my notice this year. Three cattle died on one farm near Hemmingford, Que.

During the summer, while in the Eastern Townships, I made extensive inquiries of the local veterinarians and others, but could not learn of any further cases. As you will remember, there have been in the past few years occasional outbreaks in this locality.

DIPPING SHEEP FOR EXPORT TO THE UNITED STATES.

During the year I have supervised the dipping on four farms of eighty pure-bred sheep for export to the United States. I was accompanied in each instance by one of our Inspectors, whom I instructed in this work.

Acting on your instructions I took charge of the port of Sherbrooke, and its subports for about three months last fall, during Inspector Whyte's absence in the west.

From time to time during the year, as occasions warranted, I have visited all the important ports in Eastern Canada.

I have the honour to be, sir,
Your obedient servant,

A. E. MOORE,
Chief Travelling Inspector.

The Veterinary Director General,
Ottawa.

APPENDIX No. IV.

C. D. McGILVRAY, M.D.V.,

WINNIPEG, Man., March 31, 1911.

SIR,—I have the honour to submit herewith report for the year ending March 31, 1911, in connection with the Health of Animals Branch in the province of Manitoba.

The work in connection with the Health of Animals Branch here may, for convenience, be considered under three separate divisions, viz.:—

Diseases Control Division,
Quarantine Inspection Division,
Meat Inspection Division.

DISEASES CONTROL DIVISION.

The work in connection with this division has consisted in dealing with the control and eradication of diseases coming under the Contagious Diseases of Animals Act, together with the enforcement of the various requirements of the regulations and ministerial orders relating thereto, as well also as the investigation from time to time of such other diseases and conditions affecting the health of animals appearing to be of sufficient importance.

The diseases dealt with under this division, by your officers during the past year, were glanders; mange of horses; mange of cattle; sheep scab; rabies; tuberculosis; and suspected dourine.

GLANDERS.

Efforts towards the control and eradication of glanders in this province are, I am pleased to report, still being characterized by a further noticeable decrease in the number of outbreaks detected and dealt with, as well also as a marked decrease in the number of animals found to be affected and destroyed.

Attached to this report will be found a chart and a series of maps which indicate clearly the very satisfactory nature of the results obtained under the present policy with regard to glanders since its inception in this province in March, 1905.

During the past year, I have inspected and submitted to the mallein test, and destroyed for glanders the following number of horses:—

24 horses submitted to a first mallein test.
3 horses destroyed for glanders without test, presenting clinical symptoms.

In addition to the above, I have submitted to a first mallein test 40 horses at destination which had been allowed to proceed from inspection port under license restrictions, all of which proved to be healthy.

GLANDERS STATISTICS FOR MANITOBA.

Summary showing total number of horses and mules tested and destroyed during the year, by the various inspectors here:—

Horses and mules submitted to test.

1st test, 241; 2nd test, 30.

Horses and mules destroyed for glanders.

1st test, 15; 2nd test, 1; without test, 3; total, 19.
Total compensation allowed, $1,536.66, being an average of $80.87 per animal.

Import horses tested at destination.

1st test, 139.
All of which proved to be healthy.

MANGE OF HORSES.

A few isolated cases of mange affecting horses have been detected in different parts of the province. Affected and contact animals were placed under quarantine restrictions and owners instructed as to the proper treatment of affected animals, as well also as to the satisfactory cleansing and disinfection of the premises.

Total number of horses inspected for mange.. 96
Total number of affected and contact animals quarantined 45

All of the horses quarantined were reinspected from time to time, and being found to be no longer showing evidence of disease have been released. At the present time no premises are under quarantine for mange of horses in this province.

MANGE OF CATTLE.

Mange was detected affecting a number of cattle in the district of Portage la Prairie, the infection being introduced from a shipment of cattle brought for grazing purposes from the mange infected area in Alberta. These cattle were apparently healthy and clean at the time of shipment and on arrival at Portage la Prairie. Subsequently, within a short period of their arrival they developed mange and infected other cattle with which they came in contact while at pasture.

A thorough investigation was made by your officers and all affected and contact animals were traced up and placed under close quarantine restrictions. Owners were instructed as to the satisfactory treatment of affected animals as well also as the proper cleansing and disinfection of premises. In all 56 herds were inspected, comprising 1,250 head of cattle among which 38 head were found to be affected.

Mange was also suspected as originating from a shipment of cattle made to Ontario during August last, coming from the Crystal City district. A thorough investigation and inspection of all suspected herds in the district in question was made by your officers, but no evidence of the disease could be detected as affecting any of the cattle in that district. 21 different herds of cattle were inspected, comprising 446 head of cattle.

Total number of cattle inspected for mange 1,696
Total number of cattle found to be affected 38

In accordance with the requirements of Ministerial Order No. 39, all cattle originating west of Winnipeg are required to be unloaded and inspected at Winnipeg. Cattle destined for points east of Winnipeg are only allowed to proceed after being carefully inspected and accompanied by the inspector's health certificate. Cattle showing manifestations of mange are not allowed to go forward but are detained here and are allowed to be removed from the yards under an inspector's certificate for immediate slaughter only.

During the past year, the following number of cattle were inspected at the Winnipeg stockyards:—

Destined for points east of Winnipeg	116,338
For local consumption at Winnipeg	65,521
Total	181,859

Of this number 134 were found to be affected with mange.

SHEEP SCAB.

This disease was reported by Inspector Ross, of the Meat Inspection Division, stationed at one of the abattoirs here, as affecting sheep on the premises intended for slaughter. An investigation was made by Inspector Ross and myself, and diagnosis verified by obtaining and isolating acari from the affected sheep. An endeavour was made to locate the source of infection, but unfortunately, a large number of sheep had been obtained by the abattoir for a period of two months preceding the time at the provinces of Ontario, Saskatchewan and Manitoba, with no possible means of determining from which shipment the affected sheep had come. However, a thorough investigation was made of all flocks in the province of Manitoba from which sheep had been obtained by the abbatoir for a period of two months preceding the time at which the disease had been detected, but no evidence of scab could be detected as affecting any of the flocks inspected here.

The flocks inspected comprised ten in number, aggregating 904 head of sheep, all of which proved to be healthy.

The yards in which the sheep had been kept at the abattoir were placed under quarantine restrictions and were thoroughly cleansed and disinfected under the supervision of your inspectors, and all contact sheep on the premises were slaughtered under the supervision of inspectors stationed at the abattoir.

RABIES.

During April last, rabies was reported as affecting a dog in the Minnedosa district, and investigation substantiated the existence of the disease to a small extent in that neighbourhood.

In the course of the investigation, it was found that the affected animal had been shipped by express from Palmerston, Ont., where rabies, at that time, was alleged to be in existence, on or about November 1, 1909, and remained apparently healthy until on or about April 1, 1910, at which time it manifested pronounced symptoms of rabies, and, after biting a number of other dogs, was destroyed. The brain material from the dog in question was submitted to the Provincial Bacteriologist, as well, also, as to the Pathologist of the Department at Ottawa, and reports were received from both sources to the effect that the brain material was positive for rabies.

A thorough investigation was made throughout the district and all dogs against which there was the slightest ground for suspicion of having been in contact with, and possibly bitten by, the rabid dog, were either destroyed, with the owner's consent, or placed under close quarantine restrictions to be kept safely and securely chained and muzzled on premises until released.

Nine dogs were destroyed and three others which were suspected of having been bitten by the rabid animal, were placed under quarantine restrictions for a period of six months, at the end of which time, as no symptoms of the disease had been manifested and the animals still remained healthy, restrictions were removed and no further cause for alarm has been reported.

DOURINE.

This disease has not been detected as affecting horses in this province. A stallion which was reported as suspicious for dourine in the Neepawa district was inspected by me, and on examination the condition was found to be warty excrescences of the penis, requiring surgical interference, which, upon being done by a local practising veterinarian, affected a cure.

TUBERCULOSIS.

Work in connection with this disease has been confined largely to the testing of any herds placed under the control of the Department, the testing of pure-bred cattle intended for export to the United States and also the retesting of cattle which had given a doubtful or unsatisfactory result to tests conducted by practising veterinarians with tuberculin supplied by the Department.

During the past year, I submitted to the tuberculin test, 13 head of pure-bred cattle intended for export to the United States, all of which proved to be healthy. I also submitted to the tuberculin test 30 head of cattle at the Brandon Experimental Farm, and 12 head of cattle which were supplying milk to the Sanatorium for Consumptives at Ninette, the herd having been placed under the control of the Department, all of which proved to be healthy.

There were also tested by practising veterinarians throughout the province, with tuberculin supplied by the Department, 511 head of cattle. Of this number 70 gave more or less unsatisfactory results to the first test and were therefore placed under quarantine restrictions for a period of ninety days, at the expiration of which time they were retested by officers of this Branch. Out of the entire tests conducted as above 220 reacted and were officially earmarked in accordance with the regulations, by regular officers of the Department.

TUBERCULOSIS STATISTICS FOR MANITOBA.

Cattle intended for Export to the United States.

18 were submitted to a first tuberculin test.
1 reacted to the test and was officially earmarked and exportation prohibited.

Import Cattle tested at Destination.

2 head of pure-bred cattle were submitted to the tuberculin test at destination.

Herds placed under the control of the Department.

42 head were submitted to a first tuberculin test, all of which proved healthy.

Cattle tested by practising Veterinarians with Tuberculin supplied by the Department.

511 were submitted to a first test by practising veterinarians.
70 were submitted to a second test by officers of this Branch.
220 reacted and were earmarked.

BLACKLEG.

This disease appears to be more or less indigenous to certain sections of the province where it is reported as affecting cattle from time to time.

When the true nature of the disease is established, owners are advised to resort to protective inoculation of susceptible animals, their removal from infected pastures and the proper disposal of carcases of any animals which may have died from the disease.

During the past year we supplied 98 doses of blackleg vaccine to owners for vaccination purposes.

INSPECTION OF LIVE STOCK CARS AND YARDS.

During the past year, an inspector was detailed to the Winnipeg stockyards to enforce the requirements of Ministerial Order No. 37, and all empty stock cars arriving at, or passing through Winnipeg, unless bearing evidence of having been previously treated, were cleansed and disinfected under the supervision of your inspectors before being allowed to proceed.

This work was conducted at the yards of the Canadian Pacific Railway and Canadian Northern Railway. At the Canadian Pacific yards there were cleansed and disinfected under the supervision of inspectors 5,202 cars and at the Canadian Northern yards 1,252 cars, making a total of 6,454 cars dealt with.

The stockyards were also ordered to be cleansed and disinfected under supervision of inspectors from time to time as exigencies required.

QUARANTINE INSPECTION DIVISION.

The work of this division consists in the enforcement and carrying out of the requirements of the regulations relating to Animals Quarantine; the Animals Quarantine Stations and Inspection Ports in Manitoba being at Emerson, Gretna, Bannerman and Snowflake.

During the past year there has been a considerable increase in the number of animals entering and inspected at these various ports.

EMERSON QUARANTINE STATION.

This station is located at Emerson on the International boundary line, at a point where the Canadian Northern and Canadian Pacific lines of railway, and their American connections, intersect.

The equipment and accommodation at this point consists of a fenced enclosure 205 feet in length by 100 feet wide, together with stable accommodation for about 100 horses and cattle and also covered-in shed used for the detention of swine during the required period of quarantine. The main stable is well lighted and thoroughly ventilated. There is also an inspector's office and waiting room for use of settlers during the time their stock is undergoing inspection.

Besides the inspector in charge, a caretaker is also maintained at this point, whose services are made use of in assisting the inspector and in keeping the yards and stables in good repair and cleanly condition as well also as the cleansing and disinfection of the stables with limewash and carbolic acid, from time to time, as required.

During the past year there have been presented for entry and inspection at this station, the following number of animals:—

Horses.	Mules.	Cattle.	Sheep.	Goats.	Swine.	Fees collected.
6,229	873	1,816	499	28	67	$900 20

2,847 horses and mules were submitted to the mallein test, of which 52 were submitted to a second test and 24 reacted and were refused entry.

Seven head of cattle were submitted to the tuberculin test all of which proved to be healthy.

GRETNA QUARANTINE STATION.

This station is located at Gretna, on the International boundary line, conveniently situated between the Canadian Pacific Railway and the Midland Branch of the Great Northern Railway, each of which lines has a branch spur running into the quarantine station.

The equipment consists of a substantially fenced enclosure 140 feet in length by 120 feet wide; stable 100 feet by 30 feet, providing accommodation for 45 animals, which is well lighted and thoroughly ventilated. There is also office accommodation for the inspector. During the past year, the yards at this point were filled in to a depth of about one foot with gravel, this ensuring them being in good, dry, condition.

Besides the inspector in charge, there is also maintained a caretaker whose services are made use of in assisting the inspector and in keeping the yards and stables in good repair and cleanly condition as well also as the cleansing and disinfection of the stable with limewash and carbolic acid, from time to time, as required.

During the past year there have been presented for entry and inspection at this station, the following number of animals:—

Horses.	Mules.	Cattle.	Sheep.	Goats.	Swine.	Fees collected.
1,931	587	618	87	2	nil.	$427 55

1,139 horses and mules were submitted to the mallein test, of which 13 were submitted to a second test, and 6 reacted and were refused entry.

BANNERMAN QUARANTINE STATION.

This station is situated on the B. S. & H. B. Branch of the Great Northern Line of railway at Bannerman, and is distant from the International boundary line about three and a half miles.

The equipment consists of a substantially fenced enclosure 140 feet in length by 120 feet wide; stable 100 feet by 30 feet, providing accommodation for 45 animals. The stable is well lighted and thoroughly ventilated.

During the past year there have been presented for entry and inspection the following number of animals:—

Horses.	Mules.	Cattle.	Sheep.	Swine.	Fees collected.
576	11	245	1	nil.	$131 50

Three hundred and forty-six horses and mules were submitted to a first mallein test, 58 of which were submitted to a second test, 19 to a third test, and 12 reacted and were refused entry.

Fourteen cattle were submitted to the tuberculin test, 3 of which reacted and were not allowed to enter.

SNOWFLAKE INSPECTION PORT.

Snowflake, which is an inspection port only, is located on the Snowflake Branch of the Canadian Pacific Railway, distant about three miles from the International boundary line. The Department has rented a stable at this point, which provides accommodation for about 25 animals, and, up to the present, this has been sufficient to meet requirements.

During the past year there have been presented for entry and inspection at Snowflake, the following number of animals:—

Horses.	Mules.	Cattle.	Sheep.	Swine.	Fees collected.
309	7	137	2	nil.	$23 50

Three hundred and five horses and mules were submitted to the mallein test, 1 of which reacted and was refused entry.

SUMMARY, *showing total number of animals presented for entry and inspection, and submitted to the mallein and tuberculin tests at the various quarantine stations and inspection port in Manitoba.*

Horses and mules inspected	10,523
" " submitted to a first mallein test	4,637
" " " second "	123
" " " third "	19
" " which reacted and were refused entry	43
Cattle inspected	2,816
" submitted to the tuberculin test	21
" reacted and refused entry	3
Sheep inspected	589
Goats "	30
Swine "	67
Fees collected	$1,482.75

MEAT INSPECTION DIVISION.

The work under this division is carried out by specially qualified inspectors, trained in the work of Meat Inspection, whose duties consist in carrying out the various requirements of the Meat and Canned Foods' Act and the regulations relating thereto at certain packing plants in the city of Winnipeg, viz.:—

The Swift Canadian Co., known as Establishment No. 18.
Gordon, Ironsides & Fares Co., known as Establishment No. 19.
Gallaher, Holman & LaFrance Co., known as Establishment No. 20.
The Western Packing Co., known as Establishment No. 21

During the greater part of the year, eleven inspectors were engaged in this work at Winnipeg, at each of the above establishments from two to three inspectors having been stationed, whose whole time has been devoted to the work of inspection of animals slaughtered, as well as exercising a close supervision over the preparation of meat and food products. The duties of these officers, while exacting and arduous, have been performed by them in a painstaking and conscientious manner and is having a beneficial effect on the conditions existing at the various establishments under inspection, as well as ensuring the production of wholesome meat and meat food products.

All of which is respectfully submitted.

I have the honour to be, sir,
Your obedient servant,

C. D. McGILVRAY,
Inspector.

The Veterinary Director General,
Department of Agriculture,
Ottawa, Ont.

APPENDIX No. V.

D. Tamblyn, D.V.S.,

Regina, Sask., March 31, 1911.

Sir,—I have the honour to submit herewith my report in connection with the Health of Animals Branch of the Department of Agriculture, in the province of Saskatchewan for the year ending March 31, 1911.

I performed the following work in the province of British Columbia.

During the first seven months of the year I was engaged in the province of British Columbia, with headquarters at Vancouver.

GLANDERS.

I investigated three reported cases of glanders, and tested one suspicious animal with negative results. I also submitted to the mallein test four horses which were licensed from boundary points to destination.

TUBERCULOSIS.

I applied the tuberculin test to five pure-bred cattle sold for export to the United States, none reacting. I also issued health certificates for five milch cows for export to the United States.

HOG CHOLERA.

I dealt with a number of outbreaks of hog cholera in the vicinity of Revelstoke and North Vancouver, making a general inspection of all swine in the districts mentioned. Number of hogs destroyed, 91; compensation, $534.

STOCK CAR INSPECTION.

In accordance with instructions received from Dr. S. F. Tolmie, a great deal of my time was devoted to stock car inspection at Vancouver, with a view to having this work carried out in a more efficient manner. This was accomplished with success.

Stock Yards at Huntington, B.C.

The Canadian Pacific Railway Company carried out a number of improvements which added considerably to the facilities for the sheltering and handling of live stock at that point.

HUNTINGTON PORT, B.C.

During the first seven months of the year I had charge of the above named port.

In accordance with your instructions I left Vancouver for Regina on October 27, 1910, arriving at the latter point October 29, 1910, on which date I reported to Dr. Hilton for duty, who instructed me in the duties pertaining to the work of the Branch in the province of Saskatchewan, taking charge of the Regina office on November 1, 1910.

GLANDERS.

More cases of this disease have been dealt with during the past year than in the one immediately preceding, as you will note by the appended figures, nevertheless effective work has been accomplished by the field officers who have from time to time been called upon to deal with outbreaks of the most complicated nature.

A great deal of time has been spent by inspectors in the tracing of contact animals, which if not effectively dealt with cause no end of trouble. The results of their labours in this connection have been most encouraging.

Inspector Olsen, who is stationed at Saskatoon, made a thorough physical examination of all horses in the Doukhobor community villages northeast of Saskatoon, submitting the animals exhibiting suspicious symptoms to the mallein test.

The eradication of glanders in this province is still a serious problem, but with the system now in vogue the disease should soon show a marked decrease. The ignorance of the average farmer as to the virulence of this malady, and their non-co-operation in many cases to assist in the eradication of same is surprising. However, with the increased staff of inspectors now at my disposal, I hope to be able during the coming summer to deal with the majority of infected areas.

Field Tests.

Total number of animals submitted to 1st test	6,482
" " " 2nd "	1,281
" " " 3rd "	141
" " " 4th "	14
" " destroyed	552
Total amount of compensation	$47,143.51
Total number of animals showing clinical symptoms	28
" " remaining under quarantine	388

Import Field Tests.

Total number of horses tested—1st test	390
" " 2nd "	98
" " 3rd "	3
Number of animals destroyed without compensation	14

BLACK QUARTER.

A number of applications for blackleg vaccine has been received at this office, and apparently the stock owners appreciate the benefits resulting from the use of same, as a preventive remedy. This disease is somewhat prevalent in the northwestern part of this province.

HORSE MANGE.

During the past year mange has been detected affecting horses in different parts of the province. Affected and contact animals were placed under quarantine restrictions and subjected to the treatment laid down in the regulations relating to mange.

Total number of horses inspected and quarantined for mange during the year	671
Total number of horses affected	159

These animals have been reinspected from time to time and 495 animals have been released from quarantine.

DOURINE.

This disease has not made its appearance in this province. A number of suspected cases have been investigated from time to time. I am, however, glad to report that none of the cases reported were diagnosed as such. This, I may say, is fortunate, as the appearance of this malady in the province of Saskatchewan would certainly prove a very dangerous disease to cope with.

SHEEP SCAB.

This disease has not made its appearance in the province, but owing to this malady being detected in the abattoir at Winnipeg, it was deemed advisable by you to institute a thorough inspection of all sheep in the districts of Crane Lake and Maple Creek. Acting under your instructions, I detailed an officer of this Branch for this work, with the result that no trace of the disease could be detected.

Total number of sheep inspected, property of various owners 45,550

TUBERCULOSIS.

This office has been called upon to supply tuberculin to a number of private practitioners at the request of owners for the purpose of submitting their cattle to the tuberculin test.

Thirty-five (35) animals reacted to the test and were earmarked by our officers. Three retests were conducted by our inspectors and in each case the animal reacted, and was earmarked as provided by the Regulations.

The cattle at the Experimental Farm, Indian Head, 36 in number, were submitted to the tuberculin test with negative results. In two instances owners of diseased stock destroyed the whole of their herds, numbering 48 head. The farmers are apparently alive to the importance of having healthy animals in their possession, and judging from the number of inquiries received at this office, I expect an increased number of applications for tuberculin for use by private practitioners, during the coming year.

INSPECTION OF STOCK YARDS AND STOCK CARS.

This work has been directly under the supervision of Inspector Robb. This officer has kept the railway officials aware of the necessity of continually cleansing the stock yards under their charge.

The inspection of stock cars at Moosejaw has not been just what I would wish, and a certain amount of difficulty has been experienceed during the winter months, but I think with increased facilities for accomplishing this work and a strict enforcement of the regulations, that this work may be brought up to a point of efficiency.

STOCK INSPECTION.

The inspection of consignments of cattle and horses has been confined to the mange infected area at points between Maple Creek and Morse, Sask., on the line of the C. P. R., which animals were intended for shipment to points outside thereof.

Total number of animals inspected, Horses, 739; Mules, 2; Cattle, 1,803.

BOUNDARY INSPECTION.

In connection with boundary import work in the province of Saskatchewan, I would say that while this work required detailing a number of additional inspectors to North Portal to cope with the rush of importation at certain seasons of the year, due to increased immigration, the total number of animals inspected was slightly less than that of 1910. The accommodation afforded settlers' stock at North Portal is

excellent. The increased platform space built by this Department, and the installing of electric light in the barns and office at this point, has been greatly appreciated by both the settlers and inspectors of this Department.

I may state that the services of Inspector Robb were taken advantage of in connection with this work, this officer giving valuable assistance from time to time.

The extra trackage laid down by the C. P. R. also facilitated matters in the loading and unloading of stock at the above mentioned port.

The well drilling operations at North Portal have been somewhat delayed, but I hope in the near future that the boring for water will have been successful.

The construction of new stables at Willow Creek will greatly facilitate the inspection of stock at that point. These stables should be completed early in the new year.

A number of animals were allowed to proceed to destination from the different boundary ports, on special license. I wish to state that with very few exceptions these animals have been located and dealt with by our field officers in accordance with the regulations laid down by the Department.

The following figures show the total number of animals inspected at the different boundary ports in Saskatchewan, during the fiscal year ending March 31, 1911, together with the amount of fees collected.

——	Horses.	Mules.	Cattle.	Sheep.	Swine.	Goats.	Asses.	Fees.
North Portal.....	12,618	1,225	6,386	22	8	6	82	$1,247 35
	(248)	.....	(576)	.....	.....	.....	.....	.....
Wood Mountain...	585	7	392	7,327	.....	.....	.....	413 44
Marienthal.....	385	8	167	3	.....	.....	.....	120 00
Willow Creek.....	454	4	2	3,011	.....	.....	.....	293 20
	(14)	.....	.....	.....	.....	.....	.....	.....
Big Muddy.....	477	16	68	.....	.....	.....	.....	187 75

I have the honour to be,
Sir,
Your obedient servant,

D. TAMBLYN,
Inspector.

To the Veterinary Director General,
Ottawa, Ont.

APPENDIX No. VI.

J. C. Hargrave, D.V.S.

Medicine Hat, Alta., March 31, 1911.

Sir,—I have the honour to submit herewith the annual report for the province of Alberta, southeastern British Columbia and a part of the southwestern portion of Saskatchewan.

As in previous years your inspectors, under my jurisdiction, have at all times been actively engaged giving attention to the various outbreaks of contagious and infectious diseases, and while the results have not in every case been satisfactory, yet there is every reason to believe that the efforts put forward resulted more or less in success, and, as mentioned in my last report, if such progress continues, the controlling and eradicating of such diseases as prevail will at no distant date be under complete control.

The territory added during last year having increased, our field of operations should perhaps have received greater and more personal attention, but as the staff, with their headquarters at this office, were constantly employed in field work, it rendered it impossible for me to absent myself from the office for any length of time.

During the year I inspected for shipment to points outside the province of Alberta the following animals:—

Horses, 200; mules, 41; cattle, 400.

MALADIE DU COIT.

The two fresh outbreaks mentioned in my last report have been successfully dealt with, and an effort made to control a recurrence of the disease on the Peigan Reserve, resulting in the destruction of forty infected animals.

While the utmost endeavours have been made to trace in all cases the source of infection, yet it has been found practically impossible in nearly every case to do so, this may possibly be accounted for by the fact of the very slow progress of the disease and the length of time elapsing after infection before suspicion is aroused, which makes it very difficult to gain particulars which are necessary in determining the source.

During May, June, and July, the wild, unreclaimed and stray horses ranging north of the Red Deer river were gathered under the supervision of Inspector Gallivan, and carefully examined with the result that no infected animals were found, which indicates that the efforts of your officers to eradicate this disease in the herds on the Red Deer river were successful.

STATISTICS FOR ALBERTA.

Number slaughtered, including 1 ownerless	40
Value	$4,960 00
Compensation	3,306 66
Number suspected and quarantined	687

GLANDERS.

The number of cases detected during the year were few in comparison with last year, although a much larger number were submitted to the mallein test.

For a portion of the year all horses presented for shipment between Winnifred and Swift Current were tested, with the result that out of over 2,300 only 3 reactors were found. When one considers that the test was applied to these (in most cases unbroken horses), under adverse conditions, it demonstrates almost conclusively that mallein very seldom gives false reaction.

GLANDERS STATISTICS.

British Columbia.—(Crow's Nest District).

Native horses, tested once	21

Alberta.

Native horses tested—		Native horses slaughtered—	
Once	3,844	On first test	37
Twice	292	On second test	4
Thrice	4	On inspection	1
Ceased reactor tested	1	Purchased for experimental purposes	1
Value	$5,773.00	Compensation	$3,848.66

Of those slaughtered—

18 were in the electoral district of Medicine Hat.
8 " " Red Deer.
8 " " Strathcona.
1 " " Macleod.
7 " " Calgary.

Of these 21 presented clinical symptoms.

IMPORT HORSES TESTED.

Once	531	Twice	46

Saskatchewan.

Native horses tested—		Native horses slaughtered—	
Once	866	On first test	39
Twice	83	On second test	4
Thrice	38	On third test	1
Value	$4,815	Compensation	$3,210

Import horses tested once	36
Total tests made by Alberta inspectors	5,762

MANGE.

I am again able to report the existence of very little horse mange, as compared with last year, and all outbreaks dealt with were among small herds. The total number of horses quarantined and treated were 188, of which 58 presented symptoms of mange.

Cattle Mange.

The various reports received during the last two months of the past fiscal year would indicate that the results of our season's operations have not been entirely satisfactory, but various conditions, rather unusual, were encountered that prevented to some extent better results. In addition there is the difficulty of determining whether herds, apparently free from the disease, have at any time been in contact with infected animals.

During the year I recommended the removal of District No. 9 from the infected area, and but for one herd that became reinfected by the introduction of cattle from Alberta, a recommendation for the removal of District No. 8 could have been made. This I hope to be able to do before the termination of the present year.

Unfortunately District No. 13, which for the past year was apparently free from mange, became re-infected by a herd of cattle, thought to be clean, which was brought into the district, necessitating considerable work this year.

Horse Mange.

Number of outbreaks	22
Number horses quarantined and treated	188
Number horses presenting symptoms of mange	58

Cattle Mange.—Alberta.

Number herds quarantined	502
Number cattle quarantined	134,955
Number cattle dipped twice	89,612
Number cattle dipped once	107,842
Number cattle hand treated	649

Cattle Mange.—Saskatchewan.

Number herds quarantined	97
Number cattle quarantined	19,305
Number cattle dipped twice	14,933
Number cattle dipped once	14,946
Number cattle hand treated	17

TUBERCULOSIS.

The tuberculin test was applied to forty-nine (49) head of cattle by private veterinarians with tuberculin supplied by your department, through this office and direct from Ottawa. Of these two reacted, and were so dealt with, and two gave a suspicious reaction; these on being retested proved to be free from the disease.

BLACK QUARTER.

This disease prevails to a limited extent and your inspectors are generally able to induce the owners to vaccinate their herds. Sales of vaccine to the extent of $64.25 were made during the year.

RABIES.

The efforts made last year to stamp out this disease in the Red Deer district, the first and only outbreak in the province, were apparently successful as no fresh outbreaks have occurred.

HOG CHOLERA.

Four extensive outbreaks of Hog Cholera were discovered last November, involving some forty-nine premises, the first time that it has been detected within the province. These outbreaks occurred in the Calgary, Lethbridge, Grassy Lake and Bow Island districts; in the two latter the infection was carried, by diseased hogs, from the Lethbridge district. The original source of the infection has not been definitely determined, unless due to the feeding of uncooked garbage, as it could not be learned that hogs had been brought in. Stringent measures were adopted and although four months have expired since the last cases were dealt with, yet no fresh outbreak has occurred.

Statistics.

Number of premises quarantined	49
Number of diseased hogs slaughtered	448
Number of contact hogs slaughtered	202

Value, $5,584.50. Compensation, $3,722.91.

In addition to the above 194 hogs were slaughtered and found fit for consumption.

BOUNDARY STATIONS.

Pendant d'Oreille.

A new quarantine stable and inspector's residence was erected at this point during the year, there having been no previous accommodation at this port, and a section of the quarantine reserve fenced, all of which affords ample provision for the handling of incoming stock.

Entries at this Port—

Horses, 88; cattle, 4; sheep, 1,311.

Number of reactors, 1; contacts, 3.

Coutts.

Entries at this Port—

Horses, 1,364; mules, 29; cattle, 81; sheep, 16,642.

Number of reactors, 3; contacts, 3.

Twin Lakes.

Entries at this Port—

Horses, 505; mules, 8; cattle, 9.

Number of reactors, 1; contacts, 8.

Gateway.

Entries at this Port—

Horses, 121; mules, 4; cattle, 46; goats, 3; buffalo, 15.

Number of reactors, 1; contacts, 5.

Kingsgate.

Entries at this Port—

Horses, 1,864; mules, 87; cattle, 117; buffalo, 74.

No reactors.

Inspections of stock shipped within the infected area to points outside the province of Alberta consisted of the following:—

Horses, 10,159; mules, 180; cattle, 33,923.

In addition to the above, a very large number of the different classes of stock have been inspected for shipment from one point to another within the province, necessitating a great amount of careful attention.

Respectfully submitted,

I have the honour to be, sir,
Your obedient servant,

J. C. HARGRAVE,
Inspector.

To the Veterinary Director General,
Ottawa, Ont.

APPENDIX No. VII.

S. F. Tolmie, V.S.

Victoria, B.C., March 31, 1911.

Sir,—I have the honour to submit my report for the year ending March 31, 1911.

VICTORIA.

At this port 250 horses; 20 mules; 4,122 sheep and 6 goats were inspected.

One horse reacted to the mallein test, and together with two contacts was returned to the United States. One horse also was returned to the United States on account of mange.

During the year Dr. H. A. Brown was appointed an inspector, to be used in cases of emergency and to be paid fees.

An office of the Health of Animals Branch was opened in December in the Marine and Fisheries building. This was badly needed and is a great improvement on the old method of conducting the work of the Branch here. The quarantine station has been kept in good repair and has been used whenever necessary.

On a settler making a complaint it was found that the Canadian Pacific Steamship agent in Seattle was refusing to accept shipment of settlers' stock unless they were accompanied by United States certificates, and heavy fees were being charged for these by the American inspectors. The subject was immediately taken up with the Canadian Pacific Railway officials and the matter remedied.

VANCOUVER.

425 horses; 3 cattle; 23,642 sheep; 24 goats and 1 foal were inspected here.

During the fall an office was opened at Room 18, Post Office building. This, when properly equipped and in working order, should place the work of the Branch throughout the province in a far more satisfactory condition.

Inspector D. S. Tamblyn was transferred to Regina. Inspector Thomson was transferred to Vancouver from Medicine Hat. Dr. S. Ransom was added to the staff and placed in charge of the Vancouver office. With Inspector Bland, the two latter cover the ports of Huntingdon, White Rock, New Westminster and Vancouver.

The cattle kept at the quarantine station during the past year for experimental

purposes in connection with the Red Water investigation being of no further use were disposed of. Plans were prepared for a new quarantine station here and submitted to the Department for approval.

NEW WESTMINSTER.

2 horses and 625 sheep were inspected.

HUNTINGDON.

1,012 horses; 52 mules; 137 cattle; 15 sheep; 2 swine; 231 goats; 1 foal and 7 calves were inspected.

6 reactors and 1 contact horse were rejected at Huntingdon.

The importance of this port has greatly increased during the past few years. The maintenance of a Bureau of Animal Industry inspector at Sumas, just across the line, has proved of great assistance to the Canadian inspectors, as nearly all consignments of horses are now accompanied by mallein test charts. As the United States government does not maintain a quarantine stable at Sumas, the American officer is permitted to use the Health of Animals Branch stable at Huntingdon for animals destined for Canadian points.

The quarantine stable erected here last year has been of great value and is almost constantly in use during the busy seasons. It has been somewhat improved during the year.

WHITE ROCK.

966 horses; 27 mules; 16 cattle; 5,599 sheep; 2 swine; 195 goats; 1 foal were inspected. The number of inspections here is increasing very rapidly. Negotiations are now on foot for the construction of a quarantine stable and yards at this port, and it is expected that it will be completed in the near future. This will greatly facilitate inspection work.

OSOYOOS.

470 horses; 4 mules; 5 asses; 49 cattle and 4,424 sheep were inspected. Four reactors and 8 contact horses were rejected.

In August 141 head of Indian hop-pickers' horses were permitted to enter for temporary stay on inspection and certain restrictions. Owing to lack of communication it is still necessary to have a special inspector for this port.

KEREMEOS.

116 horses; 47 cattle; 5 mules; and 896 sheep were inspected. Inspections at this port are growing and it will be necessary to establish quarantine stables here soon.

With the completion of the Victoria Vancouver and Eastern Railway to the Coast, it is expected that this port will be an important one.

BRIDESVILLE.

55 horses; 9 cattle were inspected. During the year a new quarantine stable with squeezer and yards has been established and it has proved to be a great convenience.

MYNCASTER.

18 horses; 6 cattle and 1,846 sheep have been inspected. The rented stable at this point is proving satisfactory for inspection purposes.

MIDWAY.

114 horses (9 colts); 7 mules and 2 cattle were inspected. Two reactors to the mallein test were returned to the United States at this point; two horses and four mules forming the balance of the consignment were also returned. After a lapse of 15 days the contacts were again presented and on passing a satisfactory test were permitted to enter. The quarantine station at this point is very complete and is kept in first class condition.

GRAND FORKS.

110 horses (7 colts) and 19 cattle were inspected. Stables are rented at this port for inspection purposes and are found satisfactory.

ROSSLAND.

12 horses; 65 cattle and 32 sheep were inspected. The present rented premises where inspections are conducted are much more suitable than those previously occupied by the Branch.

NELSON.

169 horses; 4 mules; 23 cattle; 249 sheep and 3 swine were inspected. The Government quarantine stables at this point were burned to the ground during July. Other suitable quarters were at once rented and fill all requirements.

RYKERTS.

31 horses were inspected. This port while not showing many inspections is a great convenience to settlers in the Creston District who otherwise would have to enter their stock at Kingsgate and thus incur much more expense.

NANAIMO.

14 mules were inspected at this port.

Export Cattle.

In all 32 cattle were tested for export.

Hog Cholera.

Hog Cholera has easily been the most important contagious disease dealt with, 17 outbreaks having occurred in many parts of the province. During the year 588 hogs were destroyed in British Columbia on account of Hog Cholera and $4,509.94 compensation was paid for same. The disease is now under control.

Glanders.—Several suspicious cases of Glanders have been reported but on applying the test no reactors were found. This is very satisfactory after our experience here a few years ago.

Harse Mange.—On visiting the Indian Reserves in the Fraser Valley where Horse Mange prevailed to some extent last year, no signs of the disease could be found. A small outbreak in Vancouver was cleared up in the early part of the year. The province is now free from it.

Blackleg.—Occurred in the Nicola Valley. The farmers and ranchmen are now familiar with the use of Blackleg vaccine with the result that the losses were not nearly so great.

The locating of stocks of vaccine and needles in the affected districts has proved a great convenience to those interested.

Cattle Mange.—Has been reported recently in the Kamloops district, a number of cattle being affected. This is regrettable as up to the present this disease has not existed in British Columbia. Mange was undoubtedly introduced by Alberta cattle. Extensive arrangements are now being made for its control.

Red Water.—The investigation of Red Water has steadily progressed and while nothing definite has been brought forward regarding its prevention, still considerable information of value has been gained which will no doubt be of use in dealing with it in future.

Car inspection work has been very much improved of late and has greatly increased in volume. This is particularly true in connection with the port of Vancouver.

Inspectors Frank, Richards and Coristine were allowed leave of absence during the year.

I have the honour to be,
Sir,
Your obedient servant,

S. F. TOLMIE.

The Veterinary Director General,
Ottawa, Ont.

APPENDIX No. VIII.

C. H. Higgins, B.S., F.R.M.S., Pathologist, Ottawa,

Ottawa, March 31, 1911.

Sir,—I have the honour to transmit this my twelfth report as an officer of the Department of Agriculture, my eighth as its pathologist.

With the passing of another milestone in the history of the Biological Laboratory, which has been under my direct charge since its inception, we have reached that position which has enabled you to make the necessary provision for the much needed addition to our laboratory accommodation. I appreciate this step and look forward with pleasure to this contemplated addition, as we have been crowded for space in which to carry out many details of our work for many years.

At the organization of the laboratory at Ottawa, following your appointment in 1902, this building seemed to be of sufficient size to meet our requirements for many years to come, but the rapid development of the Branch and the extension of the work demanded increased laboratory facilities, which have from time to time been provided for within the present building, and we now find ourselves greatly hampered by being forced to use quarters far too small for the work in hand. With the increased space I anticipate that many of our dangerous duties will be conducted under much safer and more satisfactory conditions than has heretofore been possible.

The technical staff of the laboratory during the year has included, besides myself, Drs. Wickware and Evans. The lay assistants comprise Mr. Fee, who has been the caretaker of the laboratory for a number of years, and Mr. A. Abraham, temporarily attached.

Dr. Wickware has continued to show an increasing aptitude in the duties which have from time to time been assigned to him, while the proficiency with which his work has been accomplished has increased with his experience.

Dr. Evans, who was appointed an assistant pathologist on the 10th of May last, has become greatly interested and quite proficient in carrying out the details of work placed in his care.

The *esprit du corps* among the members of the laboratory staff is a feature of the work that is particularly gratifying, for without this harmonizing of the details of laboratory routine the work is less effective, and good results cannot be as readily secured when workers are dissatisfied from any cause.

A slight change from that heretofore in vogue was made early in the year by which the work was so divided that the major portion of the pathological work has been under the direct charge of Dr. Wickware, while the bacteriological work was allotted to Dr. Evans. This method of systematization has given me a greater opportunity to exercise a general supervision over the work of each and attend to the general management of the laboratory. The time of all, however, has been fully occupied. Notwithstanding this general division of the routine, it has been my endeavour to see that each member of the technical staff was, as far as circumstances would permit, given an opportunity to familiarize himself with the entire work we were undertaking.

This course seemed the best possible solution to many of our problems, for my assistants were thereby enabled to gain a more comprehensive knowledge of the subjects coming within the purview of the laboratory, and provided the only means of rounding out their training for more effective work in the future.

With the gradual extension of the work of the laboratory it appears to be but a natural coincidence that a greater degree of specialization along certain lines will follow, and the work of my present assistants will in consequence prove valuable in a direct proportion to the broadness in the scope of the training they have already received.

Concurrently, as a result of the systematic methods which have been adopted and the increased knowledge which my assistants have gained through the year, I anticipate that we will be enabled to devote more time during the coming year to minor original studies concerning problems which have an important bearing on the live stock interests of the country. These studies, however, can only be of minor importance, for, the laboratory staff as now constituted, will not permit of any extended investigation concerning the more important problems, the solution for which must be based on detailed laboratory studies.

We have, as formerly, received many valuable specimens, some of which were worthy of more detailed studies than that necessary for diagnostic purposes. All this material, however, is not lost, as we preserve such in the hope that at some future time we will be able to deal with it from the standpoint of its practical and technical importance. Four hundred and twenty-three series of specimens have been dealt with during the year.

The disbursement of products manufactured at the laboratory has been maintained without interruption, and their quality has been held at a satisfactory degree of potency.

The details connected with our disbursements of manufactured products are as follows:—

MALLEIN.

This product is the one which occupies the major portion of our time in its preparation and subsequent disbursement according to your instructions. Our past experience is still proving of great value, and we now have but little difficulty in maintaining an adequate supply for the increasing demands of your field inspectors.

The disbursements for the past five years have been as follows:—

——	1906-07.	1907-08.	1908-09.	1909-10.	1910-11.
April	1,370	1,750	3,861	2,905	9,041
May	702	1,600	3,140	3,525	3,815
June	1,400	1,308	2,702	1,440	4,280
July	1,645	2,205	3,000	2,191	4,655
August	1,730	1,675	2,347	1,660	2,720
September	1,786	1,150	2,200	2,700	2,320
October	1,245	1,835	1,935	2,670	3,005
November	598	1,895	2,567	2,850	3,281
December	225	553	1,420	1,085	1,920
January	712	2,090	905	1,760	2,405
February	830	1,320	1,260	2,290	2,640
March	2,060	3,565	7,460	7,950	10,030
	14,303	20,946	32,815	32,996	50,112

TUBERCULIN.

The disbursements of this product have shown an increase during the past year, and we have experienced little difficulty in maintaining it at a given standard. Special tuberculin has, at your request, been prepared for the intradermal testing of cattle, and a limited amount placed in the hands of Dr. Hilton and Dr. Moore for experimental purposes.

A special tubercle bacilli emulsion, which I prepared some two years ago, has given very good results in the treatment of certain forms of human tuberculosis. This tuberculin was supplied to Dr. Campbell Laidlaw, of this city, and has been used in certain selected cases under his supervision. Dr. Laidlaw also informs me that he has placed some of this emulsion in the hands of Sir Almroth E. Wright, who also reports exceedingly satisfactory results in properly selected cases.

The disbursements of tuberculin for the routine testing of cattle for the past five years have been as follows:—

——	1906-07.	1907-08.	1908-09.	1909-10.	1910-11.
April	267	509	878	648	654
May	349	848	829	418	1,178
June	160	206	992	496	568
July	184	257	1,190	887	432
August	161	336	323	760	544
September	254	583	214	335	632
October	118	276	458	474	381
November	423	565	826	561	801
December	336	735	807	488	621
January	589	562	322	282	1,087
February	437	575	257	634	561
March	152	482	1,035	617	797
	3,430	5,934	8,061	6,600	8,256

BLACKLEG VACCINE.

Next to mallein, our disbursements of blackleg vaccine show the greatest increase of any product which we manufacture for the year just ended. The vaccine which we prepare is still proving efficient, and the lack of criticism by users may be interpreted as complimentary to its value and the method of administration. We

have not yet adopted a more improved means of performing the various operations in getting it ready for placing in its aseptic package, but this will be forced upon us if the disbursements continue to increase.

Our disbursements for the past four years have been:—

——	1907-08.	1908-09.	1909-10.	1910-11.
April	250	2,185	1,330	843
May	392	1,177	1,114	2,013
June	554	601	1,714	2,866
July	392	572	1,007	678
August	254	550	310	427
September	586	734	899	569
October	998	260	300	4,094
November	785	218	788	1,801
December	1,560	410	380	345
January	.....	35	136	147
February	270	420	4,761	380
March	990	902	730	3,101
	7,031	8,064	13,469	17,264

ANTHRAX VACCINE.

We are still manufacturing this vaccine, but the call for it is very limited. Its disbursement in a dried form on a silk thread is effective and lessens the various operations required in its preparation and administration.

The disbursements for the past four years have been as follows:—

——	1907-08.	1908-09.	1909-10.	1910-11.
April	239	.....	.....	21
May	17	.....	38	70
June	.....	.....	112	.....
July	98	265	47	36
August	77	75	40	.....
September	5	10	62	.....
October	15	43	17	32
November	.....	.....	.....	.....
December	32	25	.....	.....
January	.....	10	.....	.....
February	.....	.....	.....	.....
March	.....	36	70	95
	483	464	386	254

TUMOURS (CANCER, ETC.).

An increasing number of tumours have been examined during the year, the sources being horses, cattle, hogs and fowl. These tumours are not invariably found to be true cancers, but many belong to this class of malignant neoplasms. In the examination of specimens reaching the laboratory through the Meat Inspection Division, our general plan has been to condemn carcases affected with a malignant neoplasm, while with non-malignant new growths, when they have not interfered with the general nutrition of the host we have held that they do not render the flesh unfit for human consumption, excepting the portion or portions involved.

Much interesting work on cancer has been accomplished of late by various workers but there are probably no more interesting data from the food inspection standpoint,

than those supplied by the report of Peyton Rous,* on the transmission of sarcoma of fowls. He obtained an affected fowl and in making his first transplantations used birds hatched from the same setting of eggs. The formation of the tumour in the inoculated host was slow but by repeated transfers he has been able to develop a strain that is more easily transmitted to fowls of the same breed, but there is still difficulty in obtaining growths in fowls of a related but impure breed, while in fowls of another breed the growth is exceedingly slow or there is no growth at all. Not only has it been possible to transplant the tumour itself, but he has also found that the filtrate obtained from an extract of the tumour freed from its cells, after passing through a Berkefeld filter, is capable of inducing a similar tumour formation when injected into a healthy susceptible bird.

That at once raises the question of the possible infectiousness of all malignant tumours and the author presents this phase as follows:—

> "The first tendency will be to regard the self-perpetuating agent active in this sarcoma of the fowl as a minute parasitic organism. Analogy with several infectious diseases of man and the lower animals caused by ultramicroscopic organisms, gives support to this view of the findings, and at present work is being directed to its experimental verification. But an agency of another sort is not out of the question. It is conceivable that a chemical stimulant, elaborated by the neoplastic cells, might cause the tumour in another host and bring about in consequence a further production of the same stimulant. For the moment we have not adopted either hypothesis."

It is thus apparent that the soundness of the general opinion held by comparative pathologists receives corroboration, viz.:—that carcases affected with malignant neoplasms should be condemned. The fact that this class of tumours may be transmitted by a parasitic or chemical agent would indicate a necessity for increased vigilance on the part of inspectors charged with the examination of food products intended for human consumption.

HOG CHOLERA.

As a result of the outbreak of this disease at Cobalt in 1909, and the concurrent very serious outbreak of typhoid fever, four hogs were supplied from a local source for experimental purposes and were received at the laboratory on October 9, of that year. Your suggestion was that we determine the relationship, if any, between these two diseases and the identity of the causative agent with that reported by other workers.

At the inception of this work the available literature was consulted without finding any evidence that the typhoid bacillus in pure culture was capable of producing lesions or illness in any animal other than that resulting from the toxic products contained in the inoculating material. Intestinal lesions have been produced by a few observers after the stomach and intestine have been rendered alkaline with soda and peristalsis checked with opium.

Professor Metchnikoff at a session of the *Academie des Sciences* (March 21, 1910) made a communication on experimental typhoid fever the essential features of which are as follows:—

> "Up to the present no one has succeeded in communicating typhoid fever to animals under conditions analagous to those under which man contracts the disease; that is to say, by the ingestion of typhoid bacilli. M. Metchnikoff thought that the failure of the experiments made on this subject were due to the fact that the animals were fed pure culture of the Erberth bacilli, while typhoid infection

* Peyton Rous, M.D., laboratories of the Rockefeller Institute for medical research, New York, Jour. Expt. Med., Vol. 13, page 397.

in man manifests itself after the absorption of dilutions of the excreta charged with bacilli. He gave a chimpanzee food contaminated with a dilution of this kind and at the end of six days observed a disease presenting all the characteristics of typhoid fever."

We have been unable to conduct experiments on a similar basis owing to the fact that the facilities available are such that the danger to individuals having the immediate supervision of the animals does not warrant the risk involved. With adequate accommodation there should be no difficulty in determining the relationship, if any, between typhoid infection in the human and hog cholera in hogs.

The details of our experiments with hog cholera are given hereunder.

As already stated, for their inception we were provided with four hogs (1721-2-3-4) property of a Mr. O.——, who had experienced a number of deaths from the disease on his premises. Of these four hogs, one, (1722) had not presented visible symptoms of illness and was fat and in first-class condition at the time of its receipt. The other three, from the outset, manifested symptoms of chronic hog cholera infection.

The detailed history and use made of each hog is as follows:—

1721. The symptoms manifested by this hog on arrival were those of chronic hog cholera gradually becoming more severe till death supervened on November 6. The autopsy revealed lesions characteristic of hog cholera. The experimental work conducted with this hog is given below.

Expt. Hog 1.—Inoculated Oct. 21, 1909, with blood from 1721 filtered through Chamberland filter 'B.' It died Nov. 15, 16 days thereafter, the autopsy revealing typical lesions of acute hog cholera. During the inoculation a few drops of filtered blood accidentally contaminated the abdomen. Subsequent to inoculation this hog jumped over the pen divisions, coming in contact with hogs 3, 5 and 6. He remained in contact for less than ten minutes; each of the contact hogs, however, contracted the disease.

Expt. Hog 2.—Inoculated Nov. 8, with blood taken from Hog 1, filtered through Chamberland filter 'B.' Died Nov. 18, or ten days later, the autopsy findings being those of hog cholera with typical lesions.

Expt. Hog 4.—Inoculated Nov. 20, with blood from Hog 2 filtered through Chamberland filter 'B.' He was killed Dec. 28, at which time he was very unthrifty, emaciated, &c. The only lesions present at autopsy were a few petechial hemorrhages around the ileo-cæcal valve. He was killed at this time as our facilities did not afford proper protection without endangering some of our other animals from contact infection.

Expt. Hogs 3, 5 and 6.—These three animals were in contact with Hog 1, as above stated. Hog 3 died Nov. 29, or twenty-nine days after contact. Hog 5 died Nov. 23, or thirty-three days after contact. Hog 6 died Jan. 3, or seventy-four days after contact. The lesions in each instance were those typical of hog cholera.

Expt. Hog 9.—Inoculated with the blood from 1721, Nov 8. This animal at times presented symptoms of a very slight attack of hog cholera, was unthrifty and emaciated. Killed Dec. 28 on account of cold weather and inadequate facilities for protecting from contact infection without endangering some of our other experiments which were considered more important. At the autopsy a single petechial spot was found on the ileo-cæcal valve.

1722. This hog, a young sow, never manifested any symptoms of hog cholera, although in constant contact with 1721, 1723 and 1724, and was the subject of our final experiment on contact hog cholera.

This hog was removed from the infected pen on April 4, 1910, having been given a bath in a strong creolin solution on the 31st of March and another on the 4th of

April to preclude the possibility of conveying on its body from this infected pen the causative virus of hog cholera.

On this latter date she was placed in contact with three other hogs (experimental hogs 10, 11 and 12), being animals reserved for experiment. On June 10, in order to save time, it having been found that it was impracticable to secure a boar for breeding purposes, seven young pigs were secured from the Experimental Farm in order to place beyond a doubt the results of this contact experiment which up to this time had not resulted in the infection of a single individual. On August 8 the hogs were all slaughtered, and the most searching examination of each individual failed to reveal any evidence of hog cholera.

Conclusion.—From these experimental data we can definitely state that a hog may be quartered for a period of six months with hogs whose blood filtered through Chamberland filters 'F' and 'B' produces characteristic symptoms and death with the usual lesions of hog cholera, and yet be incapable of infecting susceptible contact hogs, after the precaution had been taken of thoroughly disinfecting the external surface of what may properly be termed an immune contact animal.

1723. This hog manifested symptoms of chronic hog cholera on arrival, subsequently recovering, although its growth was considerably stunted. Material was not taken from this hog for experimental inoculations. At the autopsy, however, a single hog was inoculated with blood from this hog, and this inoculated animal did not exhibit any resultant untoward effect. The autopsy which was performed March 31, 1910, revealed no abnormality aside from an evidence of peritonitis, having occurred during some period of its life, as manifested by the adhesion between the serous coats of the intestines.

1724. This hog also manifested symptoms of chronic hog cholera on arrival at the laboratory, subsequently recovering.

> Expt. Hog No. 7 was inoculated with blood taken from this hog Oct. 30, after passing it through Chamberland filter 'F,' and died Nov. 27, or twenty-nine days later, after presenting the usual symptoms of hog cholera.

This hog (1724) was destroyed March 31, 1910, and aside from an evidence of peritonitis, having occurred during some period of its life, no other abnormality was detected.

At the autopsy a direct blood inoculation was made from this hog to another susceptible animal. The inoculated animal neither manifested symptoms during an extended period of observation nor showed lesions at autopsy.

Conclusions.—From this case we would assume, first, that this hog was affected with hog cholera on October 31, and secondly, that it has made a complete recovery and became an immune on March 31, 1910.

A number of other hogs were inoculated with material from other sources but their detailed enumeration would furnish no further data of value that has not already been presented, therefore, they are eliminated from this brief description.

One hog was inoculated February 26, 1910, with blood from a typhoid patient which I was able to secure through the kindness of Dr. Campbell Laidlaw of this city. Typhoid bacilli were isolated from the material and we therefore assumed that it would have proved infective had the animal been susceptible. No untoward symptoms were presented by this animal or contact healthy hog. In this connection I may state that there is considerable reluctance among medical men to draw blood from patients ill of typhoid and there was therefore considerable difficulty in supplementing this feature of our investigations. In so far as I have been able to consult the literature on the subject there is not a single authentic case reported where human typhoid has been communicated to swine.

From the foregoing it is quite apparent that our work has been of a very limited nature and has been conducted under very adverse circumstances. The fact that hogs

exhibiting symptoms of the chronic form of the disease are able to live for such a long period, and that a single animal is able to remain in an infected pen during this entire time without exhibiting symptoms and continuing to improve in flesh seems to corroborate the evidence presented by other investigations.

Our experiments have confirmed the work of other scientists that the infective agent is an ultra-microscopic virus capable of passing through the finest porcelain filters.

(Chamberland 'B,' hogs 1, 2 and 4. Chamberland 'F' hog 7. Hogs 3, 5 and 6, may be said to have been infected with filtered material only, as the mode of infection was presumably contact with experimental hog 1. I believe that we can safely eliminate accidental infection by fomites from our experiments, for during the entire period healthy hogs have been kept under as nearly identical conditions to those inoculated without contracting the disease, as it has been possible to secure).

Our experiments have been conducted with single individual animals in each instance and therefore a negative result does not necessarily mean that the virus was absent, it having been shown, first by Pasteur and later by many workers that the basing of results on a single inoculation is untrustworthy.

CONCLUSIONS.

1. Hog cholera is cause by an ultra-microscopic virus capable of passing the finest porcelain filters. This confirms again the original statements of Dorset, McBryde and subsequent investigators.

2. Contact with infective material seems to be very nearly as potent in inducing infection as direct inoculation.

3. An in contact immune hog does not necessarily carry infection in its system for an extended period.

4. No opinion can be offered indicating a relationship between human typhoid and hog cholera from our experiments.

TUBERCULOSIS.

Tuberculosis in man and animals and the intertransmissibility of the disease from one to the other is a subject of vital importance to the live stock interests of any country. The International Commission on Tuberculosis under your Chairmanship has presented a most valuable report, considering as it does the practical details pertinent to any step for the control of the disease in bovines and other animals.

From the technical standpoint the work of Park and Krumweide* is worthy of more than passing consideration. They include in their final summing up, the results obtained from observations on 1,042 isolations of tubercle bacilli, 436 of these were isolations from human cases which were made under their supervision at the Research Laboratory of the Department of Health for New York city. The type of organism has been studied in each instance and is classified as being of human or bovine origin.

* Park and Krumweide, Jour. Med. Research, Oct., 1910.

The tabulation of these cases from their records is as follows:—

Diagnosis.	Adults, 16 Years and Over.		Children, 5-16 Years.		Children, Under 5 Years.	
	Human.	Bovine.	Human.	Bovine.	Human.	Bovine.
Pulmonary tuberculosis	568	1	11	.....	12	.....
Tuberculous adenitis axillary or inguinal.	2	.....	4	.....	2	.....
Tuberculous adenitis cervical	22	1	33	20	15	20
Abdominal tuberculosis	15	3	7	7	6	13
Generalized tuberculosis alimentary origin	6	1	2	3	13	10
Generalized tuberculosis	28	.....	4	1	28	5
Generalized tuberculosis, including meninges,, alimentary origin	.....	.....	1	.....	3	8
Generalized tuberculosis, including meninges	4	.....	7	.....	45	1
Tubercular meningitis	.....	.....	2	.....	14	2
Tuberculosis of bones and joints	18	1	26	.....	21	.....
Genitro-urinary tuberculosis	11	1	1	.....	.....	.....
Tuberculosis of the skin	1	.....	1	1	1	.....
Miscellaneous Cases.						
Tuberculosis of tonsils	.....	.....	.....	1	.....	.....
Mouth and cervical nodes	.....	1	.....	.....	.....	.....
Sinus or abscesses	2	.....	.....	.....	.....	.....
Sepsis, latent bacilli	.....	.....	.....	.....	.....	.....
Total	677	9	99	33	161	59

From this table it is seen that 101 cases (9·7 per cent) were caused by the bovine type of organism, and 937 (90·3 per cent) by the human type of organism. This is the most comprehensive statement that has appeared in connection with the investigation of tuberculosis in recent years, and it may not be out of place for me to mention my position with reference to the whole tuberculosis problem and the inter-transmissibility of the disease.

I have for many years held that the tubercle bacillus has a mean temperature and environment in which it attains its highest virulence, while any variation in temperature above or below this mean, or any variation in environment unfavourable to its growth leads to a certain attenuation; and that this degree of attenuation is maintained so long as the new conditions are constant. Further, I believe that the mean temperature and environment giving the greatest virulency to the organism is found in the bovine (temperature 102° F.). When the temperature is changed above or below this mean we have an attenuation, *e.g.,* in birds (temperature 108° F.), and in the human being (temperature 98½° F.), or cold blooded animals, such as fish.

The report of Park and Krumweide does not take into consideration that the length of time the bacillus has resided within the human organism may have altered its type. Their figures for children under five years of age give us a death rate of 26·8 per cent from organisms of the bovine type, while in children from five to sixteen years the bovine organism is shown to be the infective agent in 25 per cent of the cases. The percentage showing a bovine type of organism after sixteen years of age is ·13 per cent. This great reduction in the number of cases due to the bovine type of organism in adults would suggest to me that there had been a change in the type of infecting organism after residence for a variable period in the human system. Such a transformation, however, would in the natural course of events require considerable time.

The bovine type is admitted by all who have work with the organism, to exert a higher degree of pathogenicity for the usual experimental animals. It is further known that a bacillus conforming to the human type, in the majority of instances, establishes but a local lesion in bovines and this reveals a characteristic common to many organisms, namely, that with a more highly developed pathogenicity for one species the pathogenicity for other species may be lessened. In studying an outbreak of Canadian fowl cholera in 1896, the writer isolated a very virulent organism which would kill fowls in six hours, but after repeated serial passage through a large number of rabbits, the virulence for these latter animals was greatly increased, while fowls instead of developing the disease and dying subsequent to the inoculation, recovered, and were protected from subsequent infection.

Recently in our routine work of isolating tubercle bacilli for the purpose of securing a suitable strain for the manufacture of tuberculin, material from a hog has given us an organism which conforms to the human type.

Many problems are open for further study on the subject of tuberculosis, and I believe that an investigation of the inter-transmissibility of the disease would be of value to the live stock interests, as this affection is now observed in cattle, hogs and fowls.

POULTRY DISEASES.

The examination of poultry to determine the causes of death, and the giving of advice as to methods which will prevent further losses is becoming a more important feature of our work than heretofore. As formerly we are finding many cases where improper methods of feeding have resulted in causing deaths among a flock. In such instances we have advised treatment in accord with the particular lesions which we have observed at autopsy, and assume, from the fact that further losses have not been reported, that our advice has been of such a nature as to enable the interested parties to overcome the difficulties.

From my experience, extending over a period of more than fifteen years, I have been forced to conclude that fully fifty per cent of the losses among poultry have resulted from derangements of the digestive system. Many of these deranged conditions are a direct result of a disregard for the underlying principles of the anatomical arrangements for, and the physiological processes involved in the digestion of food by fowls. These anatomical and physiological considerations have been wholly overlooked or inadequately considered by workers endeavouring to improve the methods of feeding fowls. The practical poultry fancier has been the most successful in avoiding losses among his flock, as he has imitated nature, and by purely empirical means has found remedies of value for certain disorders.

Were it not for the fact that the common domestic fowl is able to adapt itself very readily to new conditions, the failures with poultry would be far greater than they are at present.

Probably the most serious menace which the raisers of fowls have to combat in the nature of an infectious disease is tuberculosis. During the year we have received affected fowls from six different localities, and from our present knowledge it would appear that the disease is quite prevalent in certain portions of the country.

Tuberculosis may be diagnosed quite easily at an autopsy on an affected bird as the liver presents white or yellow spots from the size of a pin point to that of a pea or there may be nodules on the intestines.

Fowls affected with tuberculosis are unfit for human consumption. Eggs from affected fowl should not be used unless thoroughly cooked as it has been shown that eggs from tuberculous fowls may contain sufficient bacilli to infect small experimental animals.

Where the disease has made its appearance my suggestion would be to destroy the entire flock if all have been running together and thoroughly cleanse and disinfect the quarters which the birds have occupied with any good disinfectant, one that can be recommended is a five per cent solution of crude carbolic acid. This solution may be made by adding two teacupfuls of crude carbolic acid to a pail of hot lime wash and applying with a spray pump, a brush or an old broom, to all parts of the house occupied by the fowl. The advantage of the addition of the limewash is that the area which has been covered is readily noted and the general effect on the surroundings is superior to that obtained from the disinfecting solution when made with water only. This method of disinfection is suggested owing to the fact that in tuberculosis or consumption in fowls, the bacilli or germs are found in the droppings in great numbers and these should be destroyed. This action is further recommended as it has been shown that fowls dead of tuberculosis if eaten by hogs communicate the disease to them and it is probable that the droppings would also communicate the disease in a similar manner.

To successfully overcome tuberculous infection in fowls it is necessary to take very drastic measures if any degree of success is to be hoped for.

ENTERO-HEPATITIS.

(*Blackhead*).

We have been repeatedly called upon to determine the cause of death among flocks of turkeys, finding in many instances that entero-hepatitis or blackhead was the nature of the diseased condition.

The name 'entero-hepatitis' correctly expresses the nature of the lesions found which are principally confined to the liver and intestines. The term 'blackhead' expresses the popular conception of the disease which is marked by a dark colouration of those portions of the head which in health are bright red. This clinical manifestation by which the disease is known, is undoubtedly due to a venous congestion, a direct result, through the nervous control of the circulation, of the liver lesions.

Our investigations have been outlined along very practical lines and in these I have three principal objects in view, viz.:—

First.—To secure some method of carrying recently infected birds over the acute attack in the hope that such a method will enable turkey raisers to save the major portion of their flocks.

Second.—To secure a method of totally eradicating the disease from infected flocks and preventing its distribution therefrom or introduction into flocks now healthy.

Third.—To secure a fuller knowledge of the parasite or parasites concerned in the infective process.

The published results of investigators with this disease while they are very interesting, are of very little value, if judged from the practical standpoint, with the exception of the pioneer work of Theobald Smith in 1895, which is a classical study of a very high order.

The investigators of recent years have apparently neglected the building of a sound foundation upon which a superstructure capable of practical application may be raised. This is unfortunate for the interests involved, as no data of value to the raiser of turkeys with an infected flock are available. It is therefore apparent that the amateur, who is desirous of supplementing his poultry operations by raising a few of these very valuable birds, is an unsuspecting buyer of parent stock or sittings of eggs until experience has made him painfully aware of the fact that he has bought with the birds or the eggs the infective agent which later separates him from the

original investment and the time he has spent in caring for the young poults. By this time the season is too late for him to attempt another start, and discouraged at the result he decides to relinquish further effort in this direction.

The time which we are able to devote to the study of this disease is very limited with our present laboratory and field accommodations and small staff. If our staff and facilities permitted I would allot this as the work of one assistant under my supervision, there being a sufficient number of technical points having a most intimate bearing on the practical methods of controlling this disease, to employ one investigator for a considerable time. This procedure not being possible. I am devoting such time as is available to the minute study of the material which we have on hand and which we are able to obtain from the turkeys we have under observation.

One theory which I have held for a number of years has recently received a certain amount of corroboration, namely, that if an infected bird can overcome or sustain the primary acute attack it may put on flesh, the clinical manifestations subside and finally disappear, and at the autopsy the liver presents no macroscopic or microscopic lesions. In one such case certain lesions were present in the cæca, which under ordinary conditions would have been overlooked. We have no proof that the liver was involved in this particular case during the acute stage, but we do know that turkeys from the same flock died of the disease presenting typical lesions in the liver and cæca, and also manifested similar symptoms during life to those shown by the birds presenting no liver lesions at an autopsy performed some months after the acute attack. These data which suggest a partial immunity or resistance to the disease lead me to believe that the first object of our work offers considerable hope of a successful issue.

The outlines given above and our breeding experiments seem to be about all that we can hope to do for the present and through the coming season, unless some further provision is made for increasing the scope of this particular feature of our work.

At present we have four turkeys at the laboratory from a flock of forty-nine. The remainder, save one which was autopsied here as a guide to our experiments, died from a naturally acquired infection with this disease. The five birds received from this flock were in very poor condition on arrival at the laboratory, but shortly thereafter showed a marked improvement. Whether this was due to the change in surroundings and feed, or to the treatment which they received, we are unable at this time to definitely determine. We are aware that in the case of one of these birds, which was autopsied for the purpose of determining the condition of its liver and intestines, it presents but slight abnormalities. For this autopsy observation the bird that had presented the most marked clinical symptoms and general unthriftiness was selected. To one unacquainted with the history but slight attention would have been paid to the lesions presenting themselves in the cæca.

Our observations are of necessity conducted on such a limited scale that we cannot hope during the coming season to do more than to establish a basis for future investigations.

A considerable difference of opinion exists as to the nature of the causative agent in this affection. There are those who hold to the statements of Theobald Smith, that it is due to an amœba (*Amœba meleagridis*), while there are others of the opinion that it is caused by a coccidium (*Coccidium cuniculi*). For the general information of those interested in this technical difference of opinion, I may state that we have studied cases of entero-hepatitis in which no coccidia were found, but we have failed to observe a single instance in which bodies identical to those described by Smith have not been present.

I anticipate that we may be able to delve further into this subject and add detailed information at some future date.

When a doubt exists as to the cause of deaths among fowl we will undertake, as with other animals, an examination for the purpose of determining the nature of the

malady provided we are supplied with material for this purpose. A live but diseased bird proves most satisfactory for this purpose but diseased tissue if preserved in alcohol will many times permit a diagnosis. A full letter of explanation should accompany the material in each instance.

MUSEUM SPECIMENS.

The laboratory is in need of more specimens to increase the value of the museum for reference and display purposes. These are very acceptable whether supplied by inspectors of the Branch, practitioners or others. In every instance specimens are acknowledged and we preserve the identity of the donor when labelling the material and placing it on the shelves in our museum.

We have from time to time investigated many matters other than those mentioned but the recital of details in this connection is unnecessary at this time.

Anticipating that our efforts in the future may be as fully appreciated as in the past and believing that the laboratory is constantly demonstrating its increased usefulness to the Branch under your charge and the Department.

I have the honour to be,
Sir,
Your obedient servant,

CHAS. H. HIGGINS,
Pathologist.

The Veterinary Director General,
Ottawa, Ont.

APPENDIX No. IX.

S. Hadwen, V.S.,
First Assistant Pathologist,

Mt. Lehman, B.C., March 31, 1911.

Sir,—I have the honour to submit my report for the year ending March 31, 1911.

The major part of my time has been taken up with the Red Water investigation now under way in British Columbia; between experiments, however, I have undertaken the study of Ticks and Diptera and have examined a number of specimens of pathological conditions submitted by the various inspectors. I have also investigated several outbreaks of disease, the most important being one of abortion among mares at Landers Landing.

Two addresses were delivered during the year, one before the Natural History Society in Victoria on blood sucking insects, the other before the British Columbia Stock Breeders' Association on the diseases of the udder.

Red Water Investigation.

Hæmaturia or hæmorrhagic cystitis, a disease occurring among cattle in British Columbia.

A number of new facts have been ascertained concerning this disease, and at last I am in a position to give you some accurate figures as to the mortality and probable loss occasioned by the affection. The investigation has been carried on under somewhat adverse conditions, a properly equipped laboratory, assistance, and Government owned animals to experiment on, are still a pressing need. Up to the present time the investigation has been conducted on the following lines:—A locality was chosen where the disease was prevalent, and a farm selected as a base for operations; the neighbouring farms were constantly visited, and a number of animals kept under observation; treatment was instituted wherever possible, but, as can well be understood, treating cattle under these conditions has proved unsatisfactory.

The most important work now to be undertaken is undoubtedly to discover, if possible, the cause of this affection. This problem, though no doubt a difficult one, seems to be getting simplified. It is not my intention to propound theories, but to endeavour to show what lines of experiment appear most promising.

Table I.—Showing Mortality, Etc.

This table is open to certain criticisms. It will be observed that three animals are mentioned as being affected with other diseases besides hæmaturia; to offset this, eight of the animals which were made beef of were treated, and I am confident that at least four of them benefitted greatly. Also thirteen of the seventeen animals mentioned as being alive on March 31, 1911, are being treated or have received treatment. The figures and estimates have been made low and are as accurate as I can make them.

The number of cows kept on the premises of the infected farms does not, of course, include any animal which is not milking; in addition to these there would be several animals under two years; none of these have ever shown symptoms of the disease, and as it seems rarely to attack animals under that age, they are not included in the tables. The above illustrates the severity of the affection. I do not think it would

be at all out of the way to say that there are at least five hundred such farms on the coast highlands; if then my results are accurate and can be taken as a guide, the loss would approximately be $47,623, on these farms in a year and five months. Besides these losses there are some indirect ones; the farmers in the districts I am familiar with are paid, for instance, to purchase pedigreed cattle to improve their herds. In this particular district I only know of two pure-bred bulls on highland farms.

The price obtained for highland cows is also lower than in other places, the reason being that purchasers are always in doubt as to their being diseased or not. One of the most important points which has been brought out by the present investigation, is that the average age at which cattle take this disease is at six years of age; the youngest was two years old, and the oldest thirteen years and six months. The following tables illustrate this.

TABLE II.

I have experienced some difficulty in arriving at the exact ages of the animals, but on the average believe them to be correct. Thus it will be seen that the disease is a slow, insidious one, and differs markedly in this respect from Texas fever.

Symptoms of Hæmaturia.

At the onset of the affection there is very little to note except the presence of hæmaturia; in a number of cases, all that can be seen is a drop or two of blood-red urine just as the act of urination ends; there is generally some straining. In questioning a farmer as to how his cow is getting on, I have almost invariably found that when I was told, that the cow had not been caught in the act of urinating for a few days, that she was better. Cows with red water undoubtedly urinate more frequently than other cows. I have verified this often by passing the catheter.

The first attack, as can be seen by referring to my reports, usually lasts a few days only, nothing may then be noted for weeks or months; on the other hand attack may follow attack in rapid succession, and an animal die in a few months. I am not in a position to state exactly how rapidly this disease can run its course, but consider that it is rarely shorter than six months; on the other hand, I have a number of reliable records, where cows lived for three years and over.

It must be borne in mind that all the cases I have recorded are milch cows, and are therefore labouring under a double drain.

The next symptom noted will be of emaciation leading on to anæmia, as the blood loss becomes greater; in a few cases of long standing I have observed icterus. Dropsy is common in the late stages and is especially noticeable under the jaws, the glands in these cases are enlarged. Straining after urinating is more pronounced in the late stages; this will vary according to the cause; if large growths are present in the bladder straining will be pretty constant. Clots in the bladder also frequently cause straining, and may eventually fill the entire lumen, and even cause rupture. In four cases I have studied, where the bladder became occluded with blood bacteria, invasion played an important part, and the animals were suffering from septicæmia. When the bladder becomes infected with pyogenic cocci, they may spread to the kidneys and a pyelonephritis result.

Another important point is that exercise seems conducive to a recrudescence or aggravation of hæmaturia; this can well be understood owing to the vascular nature of the lesions, obliterating clots get loosened, and, naturally, increased heart action helps out the hæmorrhage, the motion and washing of the urine may also aid.

Clots in the urine are of frequent occurrence. In view of recent experiments reported to you, I am of the opinion that these are only formed when the bladder is empty or when the hæmorrhage is above the level of the urine; once a clot is formed, the urine seems to have no power to dissolve it. The amount of blood being passed

is difficult to estimate correctly, a little blood makes a great show in urine and in the majority of cases the loss of blood cannot be as severe a drain as the milk which is taken from cows, or else they would not be worth milking or live so long.

The symptoms apply only to females. I have not been fortunate enough to study the disease in males, in which, according to Moussu, the disease has more often a rapidly fatal termination, which is readily accounted for owing to the anatomical conformation of the genital system in males, large clots of necessity cannot be passed with the same ease as in females.

Lesions encountered in cases of Hæmaturia.

The lesions in incipient cases are insignificant, perhaps a simple little lesion or two, generally near the neck of the bladder, these may be no larger than a pea. Fig. I. illustrates this condition well. There are usually a number of sub-mucous hæmorrhages accompanying the actively bleeding lesions, which may in time become active; this accounts for the persistence of the disease, one lesion heals or gets blocked up with a clot and another becomes active. I am not prepared to go into the pathology of these lesions, the large growths encountered sometimes are undoubtedly of a fibro papillomatous nature. This requires further patient study.

None of the internal organs seem to be altered with the exception of the liver and the kidneys sometimes in old cases of long standing. Whether the changes in the liver can be attributed directly to the effects of the disease, I know not. If, however, the ingestion of irritant foods is the cause of the affection, it stands to reason that the liver would be affected. With regard to the lesions found in the kidneys, pus organisms have been demonstrated, which had no doubt emigrated from the bladder.

The Urine.

The urine in cases of hæmaturia contains unaltered red cells, the diagnosis is very simply made with the aid of a microscope. Experiments made with cows' urine and blood indicate that large admixtures of blood and urine are required before clotting takes place, further experiments are being undertaken to ascertain at what point this usually takes place; that there is a variation in some animals in this regard I do not doubt, as the point at which the blood coagulates alters in different animals. In experiments made with different urines taken from diseased and healthy animals, and mixed with flowing blood, the following facts were noted: that in dilutions of equal parts no clotting took place, the mixtures being allowed to stand for hours, and that even in amounts of $\frac{1}{3}$ urine to $\frac{2}{3}$ blood no clotting took place. The red corpuscles settle rapidly, and seem to undergo very little change; mixtures of this sort were left standing for six days in a cool place, and in blood smears prepared from the sediment, the red cells were found to be practically unaltered, they stained sharply and had good contours.

In my February report I put forward the suggestion that the Dominion Chemist, Mr. F. T. Shutt, be asked to co-operate with a view to establishing the normal point at which cows, urine and blood coagulate, and to enlighten us on the part played by the various salts in the prevention of coagulation. The reaction of the urine I find to be invariably alkaline; in one or two instances, where very large amounts of blood were being passed the reaction became amphoteric.

The whole subject is one of importance to the clinician; if it was not for this property of the urine to prevent coagulation the disease would be a very rapid and fatal one. Numerous organisms have been found in the urine, and are mostly found in old cases; at the beginning of the disease the urine has been found practically sterile.

The Blood.

In the early stages no change is apparent. The first and most persistent change is a variation in the size of the red cells or poikilocytosis; later on punctate degeneration, *poly chromatophile,* and nucleated red cells are encountered, in fact the usual picture found in cases of anæmia due to repeated blood losses.

Numerous differential accounts have been made at various stages of the disease, which have been submitted to you; it is evident from these that the relative percentages of the leucocytes do not alter in the early stages. When pus organisms gain entrance the poly morphonuclear *neutrophiles* increase; this condition has only been observed four times in advanced cases. The fact that there is no change in the relative proportion of the various leucocytes helps materially to rule out at any rate pus organisms from playing any important part in the primary stages of the affection. The coagulability of the blood varies greatly; in the majority of cases I have observed it has been lowered. This is very apparent on post mortem. I have seen the blood run into the ground, leaving behind a mere handful of clots, one local butcher informed me that he could always tell a red-water cow, as the blood did not stick to his knife.

Treatment.

As stated before, treatment has been unsatisfactory from the point of view of getting accurate results. The most useful drug tried so far has been calcium lactate; this drug undoubtedly raises the clotting property of the blood, and thus helps clotting in the capillaries of the bladder. The dose given has been from 2 to 4 drachms daily for a week. The effects have been noted as early as the second day; it is true that hæmaturia may again be noted a day or two later, but may cease just as rapidly; however, every ounce of blood saved is a help. In cows where the blood clotting properties are low rapid action has been the rule. In this connection it is interesting to note that certain strains of cattle seem to bear some relationship to what are termed bleeders in man.

On one farm in eleven years seventeen animals have been lost; out of these only six were made beef of, and one of these only fetched $10.

Farm 5, Mt. Lehman—

1 bull	was shot; moribund at 1 year 7 months.	
1 cow,	2 years	old, died.
1 "	3 "	"
3 cows,	4 "	"
3 "	5 "	"
1 cow,	8 "	"
1 "	9 "	"
1 "	4 "	sold for beef.
2 cows,	7 "	1 of these fetched $35.
1 cow,	8 "	sold for beef; price, $10.
1 "	9 "	sold for beef.
1 "	12 "	"
17	97=5 years 8 months,	average age at which the animals died or were made beef of; the average age at which they became affected will probably be a year less.

On this farm the rule has been for the animals to die rapidly, and the attacks of hæmaturia to be lasting; during the past six months five new cases have developed all these have been treated with calcium lactate and in all the effects have been apparent; the attacks (as can be verified by referring to my notes) have been very short, hæmaturia one day and none the next. My first attempts at treatment were with

Epsom salts. I found that after a good dose of salts the colour of the urine almost invariably became lighter, or ceased for a time; however, the reason for this was apparent, the blood became thickened for a time, and I, of course, found it impossible to repeat the treatment often.

Phosphate of iron given daily in small doses is valuable when anaemia is present, and in several instances the blood picture has changed rapidly under its action.

At the present time farmers who are treating their cattle under my direction, at the first attack start giving calcium lactate. If the animal is at all anæmic phosphate of iron is given with an occasional dose of salts. The effects of the treatment will depend largely on the point of view the farmer takes, and what he intends doing with his cattle. The farmer who keeps small dairy cattle may find it more profitable to go on milking his cows to the bitter end. The man who keeps dual purpose cattle will generally try and make beef of his diseased animals; in the event the prognosis is much more hopeful, as milking will be stopped and a larger amount of nourishing food given. Some authorities have claimed that poor feeding was the cause of this affection; while this cannot very well be true, I have evidence to show that on farms where the disease exists and where poor feeding is practised the mortality is heavier and the animals succumb more rapidly.

Spontaneous recovery seems rare, but some long remissions have been noted in three cases for the following periods. No. 25, for a year and six months; No.43 , for one year and four months, and No. 2, showed no symptoms for a year, but had a relapse shortly afterwards.

I feel confident that much can be done in the way of experimental treatment; this is work which for obvious reasons, it is difficult for a practising veterinarian to undertake. Farmers generally have become much discouraged; many remedies have been advocated, which they have purchased and found useless, so that proof has to be given them before they will risk money.

Causation.

The cause of hæmaturia is still uncertain. It may be of interest to say a few words about the conditions under which it exists in the coastal area of British Columbia. The disease is confined entirely to bench lands having an elevation of from one hundred to three hundred feet above sea level.

From the edge of the farm I am living on, where numerous cases have been recorded, I can throw a stone into another farm where the disease has never been seen; one farm is on a bench, the other on what is called a prairie.

The most striking difference between prairie and highland is in the vegetation, the soil differs also, the highland soil for the most part is a reddish sort of loam, the prairie from black loam to peat.

Diseased highland cattle when taken into the prairie, if not too badly affected, seem to recover completely. One farmer I know makes a profitable business of purchasing diseased highland cattle; he then takes them into his prairie farm where he either makes beef of them or resells them.

Another striking case is that of a small farmer who cultivates a peat swamp; surrounding him in every direction are Red-water farms; five or six milch cows are kept on the premises with a few steers, etc.; during the past eighteen years no case of hæmaturia has developed on his property, this is also vouched for by his neighbours. I could furnish a number of similar proofs, but will content myself by mentioning one more case which came under my direct observation. A farmer whose farm is adjacent to two Red-water farms has been in the habit for some years of driving his cattle to graze on prairie lands during the summer months; in winter they have been fed on highland hay and roots, with the result that he has had no cases of hæmaturia. He keeps on an average six or seven milch cows. The most favourable time for the

disease to develop seems to be in mid-winter, when the animals powers of resistance are at their lowest. Out of 21 cases I have studied on the first appearance of symptoms, the disease began in the months set down in the following table:—

November	3
December	2
January	3
February	6
March	3
May	1
June	1
August	2

Second and third attacks also appear to be more prevalent during the winter months.

It is difficult to account for the disease, being more frequent in winter on dry food, but as the lesions seem slow to develop and the disease takes several years to show itself it may be accounted for in this way.

From the above it is evident that animals are exposed to adverse influences to a limited extent, seeing that the disease takes several years to develop. On the other hand an occasional case develops rapidly, which is encouraging from the point of view of experimentation.

When I first came to this district I found that the prevalent idea was that the disease was contagious. While I consider it is unwise to deny its contagious nature altogether nearly all the evidence I have points against it. I will give an instance of what I mean; a short time ago I was requested to go and see the first case of hæmaturia which had developed on a certain farm; the owner talked about contagion; on inquiry I found that all the cows, also the bull, had been raised on the premises, and that the last time he had taken a cow to be served by a strange bull was two years ago. The cow which had become affected was the oldest cow the farmer had and was twelve years old.

Nearly all the settlers tell the same story; that when they came they were not troubled with the disease but that it made its appearance after five or six years.

An interesting point to note is the fact that in the vicinity of Victoria and of Duncans on Vancouver Island, the disease is now a negligible quantity, but some ten or fifteen years ago was quite prevalent. The diminution of the trouble dates back to the time when creameries were first started, and the farmers began to take better care of their cows. Where the disease is rampant now is in the recently settled districts under backward agriculture.

In conclusion I desire to thank the officers of the Department for their help in securing material for examination, also to express my thanks to Dr. McKee, City Bacteriologist for Vancouver, for assistance rendered in many ways.

I have the honour to be,
Sir,
Your obedient servant.

SEYMOUR HADWEN,
Assistant Pathologist.

To the Veterinary Director General,
Ottawa, Ont.

TABLE 1.

Farm No.	District.	No. Cows kept on premises.	No. of diseased animals.	Sold for beef or otherwise.	Price procured.	No. of diseased animals alive 31-3-11.	No. Cows killed or died.
1	Mt. Lehman	14	5	2	$40—$35	1	2
2	" "	10	2	1	45	0	1
3	Peardonville	7	3	2	30— 30	0	1
4	Mt. Lehman	18	6	1	20	2	3
5	" "	9	7	1	34	5	1
6	Peardonville	5	3	0	.....	0	3
7	" "	1	1	1	35	0	0
8	Mt. Lehman	10	1	0	.....	0	1
9	" "	3	1	0	.....	0	1
10	" "	8	3	1	45	2	0
11	" "	7	4	1	57	2	1
12	Aldergrove	3	1	1	24	0	0
13	Mt. Lehman	12	1	0	.....	1	0
14	Whonnock	2	1	1	35 ea	0	0
15	Mt. Lehman	21	2	0	.....	1	1
16	" "	7	1	0	.....	0	1
17	" "	6	1	0	.....	1	0
18	" "	3	1	0	.....	1	0
19	Duncan	5	1	0	.....	1	0
20	"	1	1	0	.....	0	1
		152	46	12	.....	17	17

This table includes all the experimental cows I have had under observation with the exception of cows Nos. 12 and 24, excluded because of insufficient notes about them. One cow included in this table died at calving time, two had complications in the way of cancer.

Died, 17; value . . . . . = $850 00 at $50 per head.
Alive, 17; depreciation on value . . . . . = 425 00 at $25 estimated value per head.
Sold for beef, 12; loss due to selling milch cows for beef . . . . . = 169 92 $35 average price secured.

Loss from milk treatment, etc., 46 cows. . = 460 00 Loss is estimated at $10 per head.

$1,904 92 = loss in one year and five months on twenty farms.

TABLE II.

Cow Experimental No.	Present age or age at which experiment ended.		Duration of the disease.		Age animal became diseased.		Period of observation by self.	Disposal of animal.
—	Years.	Months.	Years.	Months.	Years.	Months.		
1	8	0	2	0	6	0	24 days	Killed.
2	5	5	3	5	2	0	1 year 5 months	Beef.
3	10	6	3	6	7	0	6 months	Died.
4	8	8	?	?	7 ca	0	8 months	Beef.
5	10	0	2	0	8	0	10 months	Sold.
6	5	9	0	9	5	0	9 months	Beef.
7	9	4	2	4	7	0	1 year 4 months	Died.
8	5	4	3	4	2	0	1 year 4 months	Killed.
9	14	0	1	9	12	3	1 year	Beef.
10	7	6	0	11	6	7	6 months	Beef.
11	9	0	1	0	8	0	5 days	Killed.
12	No re cords of duration, etc.							
13	6	0	0	2	5	10	16 days	Died.
14	7	0	?	?	6 ca	0	18 days	Died.
15	6	6	0	6 ca	6 ca	0	6 months	Died.
16	9	8	2	8	7	0	8 months	Beef.
17	8	8	0	8	8	0	8 months	Killed.
18	4	0	0	1	4	0	1 month	Died.
19	4	5	1	5	3	0	5 months	Killed.
20	7	3	0	7	6	8	3 months	Killed.
21	7	0	1	0	6	0	1 year	Beef.
22	6	10	0	10	6	0	10 months	Beef.
23	6	2	4	2	2	0	2 months	Killed.
24	5	2	?	?	5	0	2 months	Alive.
25	9	4	2	6	6	10	1 year 4 months	Alive.
26	3	0	0	6 ca	2	6	1 day	Beef.
27	6	9	1	9	5	0	9 months	Alive.
28	4	0	.....	.....	4	0	1 day	Beef.
29	12	8	0	8	12	0	8 months	Alive.
30	8	6	0	6	8	0	6 months	Killed.
31	6	8	0	8	6	0	8 months	Alive.
32	6	0	1	0	5	0	1 day	Killed.
33	8	7	0	7	8	0	7 months	Alive.
34	9	1	0	1	9	0	1 month	Killed.*
35	9	5	0	5	9	0	5 months	Alive.
36	4	5	0	5	4	0	5 months	Alive.
37	4	8	0	2	4	6	2 months	Alive.
38	4	8	0	2	4	6	2 months	Beef.
39	5	2	0	2	5	0	2 months	Alive.
40	2	8	0	2	2	6	2 months	Alive.
41	2	8	0	2	2	6	2 months	Alive.
42	12	0	0	6	11	6	1 month	Alive.
43	7	4	1	4	6	0	1 year 4 months	Alive.
44	14	0	0	6	13	6 ca	1 day	Killed.
45	7	0	0	3 ca	7	0	2 weeks	Alive.
46	5	0	0	5	4	7	2 weeks	Alive.
47	4	0	?	?	4	0	2 weeks	Alive.
48	4	0	0	6	3	6	1 day	Alive.

* (Metritis).

$\frac{284{\cdot}3}{47}$ = 6 years ·04 months; average age at which animals became affected.

ILLUSTRATIONS.

Fig. 1.

Cow No. 2.—Bladder, two button-like scars can be seen near centre, one actively bleeding growth near top. This case recovered completely for the space of one year, a slight recurrence of haematuria was observed intermittently for three months prior to the cow being killed for beef.

Fig. II.

Cow No. 34.—Bladder showing actively bleeding growths.

Fig. III.

Cow No. 20.—Bladder filled with clots; some of the clots had been emptied out before the photograph was secured.

Fig. IV.

Cow No. 20—Bladder same as Fig. III., the loose clots were emptied out, clots can be seen firmly attached near the neck, these had caused suppression of urine.

Fig. V.

Cow No. 30.—Bladder showing rose shaped papillomatous growth. The bladder was filled with a decomposing clot and was the size of a football.

Fig. VI.

Cow No. 19.—A typical case of harmaturia.

SESSIONAL PAPER No. 15c

APPENDIX No. X.

A. Watson, V.S.,
2nd Assistant Pathologist.

Quarantine and Experimental Station,
Lethbridge, Alta., March 31, 1911.

Sir,—I have the honour to submit herewith my report for the year ending March 31, 1911.

At the Quarantine and Experimental Station, Lethbridge, I have continued the study of that contagious, very insidious disease of horses known as Dourine (*Maladie du Coit*), observations and experiments in connection therewith relating especially to the pathogenicity and chronicity or periodicity of infection; possibilities of recovery and immunity under natural conditions, and the employment of surviving animals for ordinary work purposes and for purposes of breeding; also a practical test of the efficacy of drug treatment, particularly of certain arsenical compounds and special remedies that have been elaborated as the result of a world-wide investigation of a group of closely allied diseases that includes Dourine, Surra, and the several animal scourges due to *trypanosomata*, as well as 'Sleeping Sickness' of man and human Syphilis, the successful treatment of which has recently been greatly advanced by the notable discoveries of Professor Ehrlich and his collaborators.

To this research and experimental work, of which a separate account will be submitted, I have been able to give only a portion of my time during the past twelve months, my services being very frequently required for the investigation and control of scattered outbreaks of disease in different parts of the province of Alberta.

When dealing with an outbreak of Dourine the utmost endeavour has been to trace in all cases to the source of infection and to close up every possible avenue of escape.

Unfortunately, the development of the disease is, in the majority of cases, a slow, hidden process, and the early stages of infection usually pass unnoticed by the horse-owner or the stud groom; more often than not it is only when an animal—a high-priced stallion, for instance—is in an advanced stage of the disease that the owner becomes alarmed, the nature of the malady suspected and brought to the attention of the veterinary inspector, months, or a year, perhaps, after first contracting the disease, thus allowing opportunities for its dispersion in various directions by means of breeding operations and through the sale or exchange of affected animals. Such was found to be the case in an outbreak occurring in the vicinity of Raymond, in Southern Alberta, necessitating an immense amount of work and energetic inquiries before its many ramifications could be located and searched out.

The work of control and stamping out is becoming more efficient as the hesitancy, indifference, or, more regrettable still, the mistrust and prejudice that has existed in the past in some quarters, hampering the work of this Department, is overcome and gives way to increasing confidence and intelligent co-operation on the part of the owners of suspected or contact animals, and of the horse-owning public generally.

An outbreak or recurrence of Dourine on the Peigan Indian Reserve presents considerable difficulties. There is more or less intermingling of the various herds, and as affected animals have been found among a number of them, practically the whole of the breeding animals upon the reservation have come under suspicion and

quarantine restrictions. Here, exceptional difficulties in the way of diagnosis are encountered, these horses being, for the most part, semi-wild, unbroken, of the native pony-breed, notorious for their ability to carry dourine infection without betraying its presence by distinctive signs or symptoms of ill-health, possessing or acquiring, in many instances, more or less immunity themselves but probably capable of transmitting infection at certain intervals to healthy and more susceptible animals when brought into covering-contact with them. Owing to this tolerance the disease does not work great havoc among the Indian horses, but such herds are undoubtedly a serious menace to the better bred herds in the surrounding country. The Indian does not view with equanimity the destruction of one or more of his animals that do not show to his eyes tangible evidence of disease; neither is it easy to persuade him of the necessity of curtailing or prohibiting for a time his horse-breeding. Arrangements are now being made for a round-up of all horses upon the reservation, and it is hoped that a careful re-examination and separation of these animals will result in further narrowing down the limits of infection and bringing it well under control.

During the past twelve months I have made repeated visits to the premises quarantined in connection with Dourine outbreaks discovered during the year 1909 in districts north of Calgary; thanks to intelligent observation and assistance on the part of the owners and breeders the efforts of the Department to prevent the spread of the disease and stamp it out from among the herds affected appear to have been entirely successful.

Summary for the year ending March 31, 1911:—

DOURINE OR MALADIE DU COIT.

Number of animal inspections	2,100
" animals suspected and quarantined	640
" " slaughtered	36
(1 unknown value $85, not included in figures below.)	
Valuation of animals slaughtered	$4,500
Compensation for "	3,000

HOG CHOLERA.

In November, 1910, in accordance with instructions given by you through Dr. Hargrave, Chief Inspector for Alberta, I proceeded to investigate reports of disease among swine, and was able to recognize by post mortem examinations, in many cases, the typical lesions and conditions that are characteristic of hog cholera, and to establish diagnosis accordingly.

I located a number of outbreaks and found that, with few exceptions, the animals had been fed mainly with hotel swill or garbage from the city slaughter houses, mostly uncooked—a recognized source of infection. The introduction of the disease in the first place, however, could not be ascertained; on certain premises it was shown to have been in existence for a period of six months or more and very destructive to the herds of swine thereon.

My work performed in connection with this inquiry is summarized as follows:—

District.	Number of outbreaks discovered.	Hogs ordered destroyed.
Calgary	5	369
Lethbridge	4	Quarantined by Insp. Gallivan
Bow Island	2	Quarantined by Insp. McMilan

I issued slaughter certificates for eight of the animals ordered destroyed, at a valuation of $61.50; compensation, $41.

The work of controlling these outbreaks, dealing with others and extending this investigation was left in the hands of the inspectors in charge of the districts named.

CONTAGIOUS OR EPIZOOTIC ABORTION IN MARES.

At this time about a year ago, I was inquiring into a contagious form of abortion that was causing heavy loss to horse breeders in districts north, east and south of Calgary and along the course of the Red Deer river. On May 17, the horse breeders called a meeting at Didsbury, Alta., for an interchange of views and discussion of the measures that could best be adopted for the suppression of abortion and to prevent its recurrence another year. In a number of interviews, with various owners interested, the infectious nature of this condition and the precautions to be taken against it were explained in accordance with the present state of veterinary knowledge on the subject. From recently made inquiries I am led to believe that the troublesome experience of last year has not been repeated up to the present stage of this season, and that very few cases of abortion have as yet been known to occur.

LOCO-DISEASE.

I have been too fully occupied with other work to revisit the loco-affected areas within and bordering upon the Porcupine Hills, or to further the investigation commenced by this Department in the year 1907 and continued during 1908 and 1909.

At the Experimental Station, Lethbridge, there is but one survivor of the 13 animals that were removed from the Porcupine Hills in 1907, for purposes of study and observation (see my report on Loco-disease, 1908). This lone survivor has apparently made a complete recovery. The horses succumbed early, but two of the six cattle lingered until the middle of the winter just ended.

It has been told me by parties living within the affected area that the disease was much less prevalent during the first half of the year 1910 than in former years; this information is corroborated by Inspector Busselle and range rider Baker, who state, however, that recently the disease is again much in evidence and causing considerable loss among stock and horses.

MANGE.

Ordinarily I am not required to deal with this disease, but while carrying on some work with Dourine in the Vermilion district two cases of horse mange were brought to my notice; these I quarantined and left to be dealt with by Inspector Caldwell.

It may not be out of place or without interest to remark here that during the past winter I have observed that the coyotes or prairie wolves that roam about the ranges west of Lethbridge and upon the Blood Indian Reserve, are severely affected with Sarcoptic Scabies. I have shot several of these animals for examination and found them in very poor state of nourishment, with scarcely a vestige of fur remaining, the denuded surfaces being indurated and thickened, and showing cracks, erosions and heavy, scabby encrustations. The sarcoptes were easily isolated, photographed, and specimens preserved at the Experimental Station.

QUARANTINE AND EXPERIMENTAL STATION, LETHBRIDGE.

Number of Animals.	Horses.	Cattle.
April 1, 1910.—On the premises	55	3
March 31, 1911.—Admitted during the year	2	..
Born on the premises, 1910	9	..
Total	66	3

Number of Animals.	Horses.	Cattle.
Died during the year	9	2
Released from quarantine	4	..
Surviving	53	1
Total	66	3

The 53 animals surviving at this date are all Government animals, related to Dourine experimental work. The number includes:—

3 saddle mares, in charge of Range Rider Murphy, Milk River.
6 harness mares " Mr. L. Sage, of Kipp.
1 " mare " Mr. R. V. Gibbons, Lethbridge.

These animals having been broken to work with a view to testing, by this means, their apparent recovery from dourine infection.

The cattle mentioned above are the survivors of the loco-affected animals sent to this Station in the year 1907.

There was admitted during the year, for purposes of observation and experiment, the condemned stallion concerned in the outbreak of Dourine at Raymond; also a black gelding from High River, to be isolated here for a period of 12 months, awaiting re-test for suspected glanders.

The nine foals born upon the premises are the offspring resulting from dourine-breeding experiments carried out during the preceding year.

The horses wintered very poorly, owing to the very scanty feed available, there being practically no growth of pasturage during the dry season of 1910, and the severe winter conditions of 1910-11. A severe chronic form of diarrhœa has been very prevalent, causing much emaciation and weakness in the affected animals; 5 deaths are attributed to this cause, 1 to acute indigestion, 1 to a trial dose of a poisonous drug, and 2 to progressive Dourine—total, 9.

The mortality from Dourine among the patients at this Station, including natural and experimental infections, treated and untreated, from Nov., 1906, to March 31, 1911, is a fraction over 30 per cent; the surviving subjects, with one or two exceptions, appear to have recovered from the disease.

There has been formed in connection with the laboratory the nucleus of a small museum of pathological specimens, chiefly relating to Dourine, Loco-disease, and Hog Cholera, also a collection of micro-organisms, principally of the protozoan family,—trypanosomata, piroplasmata, &c.,—entozoa, ectozoa, and blood-sucking diptera; charts, photographs, &c.

Doctors Hargrave, Higgins and Hilton have interested themselves in the work of this Station, conveying to me your views and instructions regarding experimental work, and making helpful suggestions and recommendations.

The work of Mr. A. Murphy, range rider, and of Mr. A. Hardie, station caretaker, has been painstaking and satisfactory. A small frame building has been erected as the caretaker's dwelling house, enabling him to make a home here and to take a more permanent and settled interest in his work.

A small stable and corral have been erected for the isolation of glanders suspects. Portions of the Quarantine Station fences have had to be reconstructed.

The Lethbridge Collieries Co. have, with your authorization, erected and maintain a steam pumping-plant within the Station premises for the requirements of their mining properties.

I append herewith my contribution to the study of Dourine—an account of the pathogenicity of a strain of *Trypanosoma equiperdum,* and experiments relating to the drug-treatment of the disease; also, a few remarks on the diagnosis. Other papers are in course of preparation.

I have the honour to be, sir,
Your obedient servant,

A. WATSON, V.S.,
Assistant Pathologist, in charge of Quarantine and Experimental Station, Lethbridge, Alta.

To the Veterinary Director General,
Ottawa, Ont.

APPENDIX No. XI.

ON THE DIAGNOSIS OF DOURINE.

I venture to make a few remarks in respect to further research work in Dourine and to what is, probably, the most desirable objective point in view, viz.:—a simple and reliable method of diagnosing a non-clinical or latent case of infection.

Having regard to the length of time Dourine has been in existence in this country, the large area involved, and the loose conditions that prevail upon the range and among breeding establishments generally, the comparatively low incidence of the disease at the present time is a noteworthy fact, and due to a great extent, no doubt, to the prompt and stern measures taken by this Department towards its control and suppression. However, sporadic outbreaks are still occurring or recurring, owing to, I believe, the continuing in existence of strains of low virulence resulting from being compelled to pass through a series of resistant animals—the more susceptible ones being either swept off at a comparatively early stage or presenting sufficient clinical manifestations for recognition and prompt dealing with.

The present state of the infection in Southern Alberta may be compared to the state of chronic endemicity following after an epidemic of various infectious diseases. For these existing strains of low virulence we have as yet no practical means of detection. They rarely produce a well marked clinical case, or only when the infection is transmitted to more highly-bred and susceptible animals, but the fact that it is tolerated and harboured for a considerable period of time by resistant animals I have obtained proof of, on not a few occasions, by ascertaining the presence of *trypanosoma equiperdum* in animals whose health remained undisturbed and that had not showed any clinical evidence of disease and yet in which the infection was of long duration as shown by the history of the outbreak and date of covering, or, as in some of the experimental infections, the period since inoculation. Whether the infection in such animals eventually dies out altogether or whether the resistance is at length broken down must remain uncertain. In some cases the first alternative may happen and in others the second, incidental to the state of nourishment, stress of overwork, and

reduced vitality from various illnesses or separate causes. I have, however, obtained experimental proof that a true immunity results from infection followed by natural recovery.

Microscopical search for the trypanosome constitutes at times an important aid to diagnosis but does not fill the requirements of a reliable test, positive results only being of value, a negative finding not helping one way or another. What is required is a method capable of, if possible, as wide an application as is the method of diagnosing latent Glanders,—the mallein test. At present there is little hope of devising one upon similar lines, on account of the almost insurmountable difficulties in the way of artificial cultivation, and the preparation of the bio-chemical products of the Dourine trypanosome. However, a satisfactory method of determining in the blood or serum of a suspected animal the presence or absence of the specific 'antibody' formed in response to dourine-infection would be of value equal to the mallein test for Glanders, and it is quite within the bounds of possiblity that such a method can be worked out upon the lines of the well known '*Wassermann reaction*' discovered in relation to human syphilis and rapidly coming into universal employment.

This reaction, otherwise known as the 'Fixation' or the 'Deviation of the Complement' is based upon the fact that an antibody, in the presence of its homologous antigen, fixes or deviates the complement,—a normal constituent of every fresh serum. The reagents have to be laboratory prepared, and when the test is to be made are added to a small quantity, a few drops sufficing, of the serum of the suspected patient. If in this mixture hæmolysis, the dissolution of sensitized red blood corpuscles, takes place, then the complement has not been fixed and the specific antibody is not present in the serum tested, that is to say, the patient is not infected; if, on the contrary, instead of the dissolution of the red blood cells and the consequent reddening or laking of the mixture, the red cells sink to the bottom of the tube and the mixture above remains clear, then the 'complement' has been bound and the presence of the antibody determined, thus affording evidence of infection. The test can always be controlled by a positive serum of known reaction.

Complement-fixation has already been found applicable, with certain necessary modifications, to the diagnosis of various diseases; it is now employed for the diagnosis of Glanders in Germany, in central institutes; it is being tested in a number of the diseases caused by trypanosomata, and numerous investigators are at work endeavouring to simplify the technique so as to permit of its still wider application and general use. The general opinion is that syphilis can be diagnosed with certainty in at least 90 per cent of cases, in all stages after the first few weeks of infection.

In addition to this method there are several other serum reactions and precipitin-tests well worthy of investigation with respect to Dourine. The facilities and equipment for carrying on such work at the Lethbridge Experiment Station are, at present, too few to permit of more than most preliminary undertakings, but, as the result of my examinations of Dourine-sera and the experiments I have been able to make, together with a study of the literature bearing upon this subject, I am led to believe there is less doubt that the test can be successfully performed than there is that it can be simplified sufficiently for practical veterinary use outside of a laboratory.

A. WATSON, V.S.,
Assistant Pathologist.

To the Veterinary Director General,
Ottawa.

SESSIONAL PAPER No. 15c

APPENDIX No. XII.

DOURINE,—ITS PATHOGENICITY, AND A PRACTICAL TEST OF THE EFFICACY OF DRUG TREATMENT, WITH ESPECIAL REFERENCE TO THE ACTION OF ATOXYL AND ARSENOPHENYLGLYCIN.

By A. Watson, V.S., Assistant Panthologist.

This paper is the result of a continuation of the study of Dourine, which the writer has been privileged to carry on for several years past under the direction of Dr. J. G. Rutherford, C.M.G., the Veterinary Director General; it presents a summary of observations on the pathogenicity of a strain of Dourine, in horses, and, for comparison, the results of a series of infections, due to the same strain, in which experimental treatment has been applied.

Grateful acknowledgement is here given to the kindness and interest shown by Professor J. L. Todd, of Montreal, and by Professor P. Ehrlich, Frankfort-on-Main, Germany, in their suggestions regarding dosage and combined methods of treatment and in furnishing the Arsenophenylglycin and Trypanblau used in these experiments.

1. PATHOGENICITY.

It has been the writer's endeavour to study the trypanosome of Dourine in the order following: (1) cases of natural infection, (2) experimental infections of natural hosts, (3) experimental infections of unnatural hosts—all with the same strain of trypanosome, or with different strains obtained direct from the natural host —and then back again in the reversed order. Such, whenever practicable, would appear to be the proper procedure in the study of any animal trypanosomiasis, but the literature covering these diseases does not show that it is generally followed. Experimental infections of unnatural hosts seem to be carried to an extreme and with an insufficient regard for the influence of foreign blood and the variable factors attendant upon a change of environment, in consequence of which, it is suggested, the conclusions that are apparently justified by laboratory experiments so frequently fail to hold good when the experiment is repeated under natural conditions.

This is especially true in respect to experimental infection and drug treatment in which, in numerous instances, the reported laboratory successes are offset by the limited achievements or discouraging failures met with on putting the method to a practical test in the field.

In so far as is concerns the experiments and observations cited in this paper, a single infecting strain of dourine trypanosomes has been employed throughout; further, this particular strain has always been carried direct from horse to horse without intermediary passage through laboratory or other animals, and has not been subjected to any influence or environment foreign to its natural host. It is the first known disease producing trypanosome found in North America; observations on its pathogenicity, covering a period of five years, have been made in horses that became naturally infected with it during the year 1906, and in the horses in which it has been experimentally carried on for four years past—since the date of its actual discovery and isolation at this station, in Feb., 1907. It has been comparatively studied with several other strains of Dourine, but on account of its being the best known among them was selected for these experiments on treatment. It has acquired increasing

virulence for horses by continued passages through young animals of that species, chiefly foals, as will be seen from the following review of its progress through succeeding generations:—

Origin.—A naturally infected stallion,—only slight symptoms shown during 1st year. The disease became active after 12 months, its course marked by recurring and increasing œdema, interstitial keratitis, progressive weakness, emaciation, paralysis and death. Infection was of a chronic and intermittent type and had a duration of nearly 2 years.

1st Generation.—Twelve mares, naturally infected,—diagnosis was made on clinical symptoms, such as local swellings and vaginal symptoms, loss of nerve control, bodily weakness, &c. Six mares were destroyed when the disease was of about 1 year's duration; 3 died of Dourine and 3 recovered. The disease was chronic and intermittent in all cases; the duration in the cases that recovered was about 12, 18 and 21 months, respectively, and in these the period of survival and recovery is 3½, 3 and 2 years, respectively. In the fatal cases the disease duration was 2 years in two, and 3½ years in the third; in this last, in the 7th-8th month of disease, the trypanosome itself—the progenitor of the succeeding generations—was first discovered.

2nd Generation.—A stallion, naturally infected by one of the above mentioned mares, came under observation only for a short period before its death; the history obtained showed that the disease was of about 2 years' duration and of a similar type to the case of the first mentioned stallion.

Four experimental infections,—2 foals, 1 mare and 1 gelding. In the 1st foal the course of disease was fairly rapid and marked by temperature elevation, œdema, enlarged glands, paralysis, emaciation, and death in the 5th month. In the 2nd foal and in the mare, an aged animal, the disease ran an almost parallel course. 1st stage, periodicity of trypanosomes in vaginal fluids and vulvar œdema, local sypmtoms only; a long intermission or latent interval followed, being succeeded at length by a period of plaque eruptions, eye and nerve symptoms very typical of Dourine. It is of interest to note that towards the end of this last period the trypanosomes were found in each animal, in the contents of the local swelling, in large agglomerations and in different stages of phagocytosis. This fact throws some light on the process of the acquired immunity that each of these animals subsequently enjoyed. Recovery took place speedily and has been maintained for over 2 years. The gelding showed enlarged glands after 3 months, intermittent incoordination and paralytic symptoms from 6th-12th month; recovery ensued, 2¾ years.

3rd Generation.—Four experimental infections,—2 fillies and 2 foals. Fillies: mild, intermittent type; periodicity of trypanosomes and local œdema during 1st 6 months, little loss in body weight; no nervous derangement or marked disturbance of the general health. In each animal the disease duration was 6-8 months, the period of recovery being 2 years.

Foals: severe, chronic, intermittent type of disease. 1. Fourteen paroxysms of fever, each averaging 5 days duration, the intermissions averaging 21 days, during 1st year. Nine paroxysms, 6 days average, intermissions 30 days, during 2nd year. Remission of symptoms with generally improving health during 3rd year; rarely, slight traces of a brief relapse. 2. Subfebrile temperature, 101-103° F., for long periods, and 4 fever paroxysms, during 1st year. Seven paroxysms, average 8 days, intermissions averaging 44 days, during 2nd year. Recovery is now—3rd year, indicated.

In either of these foals, in addition to the fever, there was presented the usual symptoms—œdema, loss of body weight, severe eye and nervous troubles, and general ill-health.

4th Generation.—One experimental infection, in a foal, the disease being chronic and intermittent, similar to the two cases preceding. Fever, in eleven paroxysms averaging 5 days' duration, intermissions 22 days, in 1st year of infection. There was also periodical recurrence of trypanosomes, local œdema, and nervous symptoms. In the 2nd year there were 6 periods of fever, the intermissions lengthening out and general health improving towards the end. Recovery is indicated, 3rd year.

5th Generation.—One experimental infection, in a foal, severe throughout. Fever commenced on the 22nd day with a very severe paroxysm, continuing in a lesser but well marked degree for 3 months, with but slight and brief remission. Other symptoms included recurring œdema with trypanosome periodicity, severe eye lesions, and general ill-health. Relapses of fever, emaciation, paralysis. Death occurred in the 18th month.

6th Generation.—One experimental infection, in a foal, commencing, after short incubation, with severe symptoms, followed by remissions, intermissions and a period of recovery. Œdema and fever began on the 7th day, with more or less continuance for 2½ months. There was resulting loss in body weight, but the nervous system was but slightly affected. Trypanosomes were not seen after the 3rd month. Slight attacks of fever, with lengthening periods of intermission, were noted until near the end of the 1st year, though at that time the general condition had much improved. A normal period of health, of 9-10 months duration and still continuing, may stand for recovery.

7th Generation.—One experimental infection, in a foal,—acute course, marked by a single, severe fever paroxysm intervening between two subfebrile periods, with resulting rapid wasting of the body tissues and death on the 41st day.

8th Generation.—One experimental infection, in a foal,—acute course marked by 24 days of incessant fever, œdematous swellings, rapid wasting and death on the 51st day.

9th Generation.—One experimental infection, in a foal,—acute course, marked by 23 days incessant fever and death on the 51st day, almost paralleling the preceding case.

10th Generation.—One experimental infection, in a foal,—acute course; 90 days' fever with two brief remissions, and death on the 101st day.

The above summary indicates the increasing virulency and altering pathogenicity of the dourine strain. Filly foals were used for carrying the 2nd, 3rd, 4th, 5th, 6th and 10th generations of the trypanosome, and entire horse foals for the 7th, 8th and 9th. With the later, it may be noted, the infections were the most severe and acute; this observation, apart from the fact of increasing virulence resulting from continued passages, accords with general experience that the disease is usually more progressive in the stallion than in the mare. Throughout the series the most striking feature is the development and intensification of a characteristic type of fever. Until the 3rd generation was reached fever was a rare symptom; with the 3rd and 4th it was associated as alternating paroxysms and intermissions; with the 5th and 6th, fever stages were still more constant, severe and prolonged; and in the acute infections with the 7th to 10th generations fever constituted the chief event of symptomatic importance overshadowing all other pathological conditions. The *trypanosoma equiperdum,* always more or less difficult to locate in horses, was no less so in the later and more severe cases than in the earlier ones; the parasites were never found in the general circulation, not even during the four acute infections; on two occasions they were found in clear lymph escaping from a punctured lymph vessel in the tail, otherwise they appeared only in the fluid contents of œdematous swellings and in preparations taken from the vaginal mucosa.

Although the virulence of the strain became intensified for horses there was no corresponding increase in virulence for animals of another species, and at no time was it found possible to produce an acute infection in laboratory animals or to carry on the strain in them with certainty.

In horses the mortality may be placed at, approximately, 50 per cent or rather less, for in these 23 cases of infection (eliminating the 6 mares destroyed—1st gen.) the results are; 10 deaths, 2 cases still in doubt, and 11 indicated recoveries. This mortality may be compared to one of 30 per cent among all dourine-infected animals recorded at this Station, 1906-1911.

II. TREATMENT.

Horses only were employed for the purpose of experimental treatment, no preliminary work being undertaken with dogs, rabbits, or the usual laboratory animals for the reason that, in the first place, numerous experimental inoculations with this trypanosome strain in animal species other than the equine had for the most part failed to produce positive results or to propagate a strain of sufficient virulence for practical requirements, and secondly, that the drugs to be given trial had already, in the hands of various workers, been proved to be more or less efficient in the treatment of several of the most important of the trypanosomiases in laboratory animals; it seemed desirable, therefore, to directly apply the most promising methods of treatment to dourine infections in the equine host.

Experiments with:—

*A. Atoxyl.**

1. The drug, in comparatively small doses, could not be tolerated by a stallion in the very advanced stages of the disease, and was probably contributory to the immediate cause of death.

2. Atoxyl treatment in a filly, given in three injections during the 6th month of the disease was rapidly followed by disappearance of symptoms and maintained recovery. A year later the animal was successfully bred, without infecting stallion or offspring, was bred again the following year and is now 'with foal' and in good health. Duration of recovery is 2½ years, without relapse.

3. A gelding, showing well marked paralytic symptoms of dourine, received in one month 7 injections of Atoxyl, 10 grammes in all; some improvement resulted but the case relapsed to its former condition after an interval of 3 months.

4. A young filly in which the course of infection was well represented by a paroxysm of fever recurring with singular regularity after each 20, or 21 days intermission, was given two full doses of Atoxyl, the one on the 10th day and the other on the 13th day of an intermission. It was observed that the drug had no action in preventing or delaying the return of the fever which was again registered upon the day it became due, namely, the 20th day of intermission, and was followed by the usual period of paroxysm and further intermission. The presence of trypanosomes noted at frequent intervals up to the time of the drug injections was not again ascertained until after a lapse of more than 3 months.

B.—Atoxyl, Mercury bichloride and Potassium iodide.

5. A mare showing well marked dourine paralysis received two courses of Atoxyl, 18·0 grammes of the drug in all, with Mercury bichloride injections and Potassium iodide in the interval between. The paralysis disappeared and normal control and health became established. The duration of recovery is now 2½ years, during which the animal has been given steady work for periods of 6 months at a time.

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* The experiments with Atoxyl are here summarily dealt with, details of treatment having been described in my earlier report, 'An Experimental Study of Dourine,' 1909.

C.—Atoxyl, Mercury and Arsenic Iodide, and Arsenophenylglycin.

6. In a young animal a course of Atoxyl given during the 4th month of disease was without effect in arresting infection. The second course of injections alternating with Donovan's solution (Mercury iodide and Arsenic iodide, 1 per cent), 6th and 7th months, had no better result, neither a 3rd course of large doses of Atoxyl in the 9th month. At the 12th month the disease was very advanced and, it appeared, must soon terminate fatally. A single full dose of Arsenophenylglycin was given and repeated 7 weeks later. Great depression and weakness marked the interval between injections and after the last, but the disease made no further progress and though relapses occurred later they became more rare and less noticeable in effect. The case is now of 2½ years duration, and though not cured, febrile periods still occurring at long intervals, the general health and condition is much superior to that before the administration of A-p-g.

D.—Arsenophenylglycin, Trypanblau, and Sodium arsenate.

7. A filly, in the 5th month of disease, and when 11 months old, received 10·0 grammes of Arsenophenylglycin, and after an interval of 35 days, 12·0 grammes. A febrile period recurred from the 30th-33rd day after the 1st injection; on the 28th, 29th and 33rd day after the 2nd injection the temperature reached 102° F., and on the 47th day 103° F. Great depression and weakness noted. A powder of iron sulphate and arsenious acid given daily for one month seemed to effect slight improvement, but a few weeks later the fever returned and the condition became as grave as ever. A mixture of Arsenophenylglycin 10·0 grammes, Trypanblau 5·0 grammes, Sodium arsenate 0·5 grammes was then given; a period or remission followed, then further relapses, and death.

E.—Arsenophenylglycin.

8. A filly, with severe symptoms and persistent fever, received on the 83rd day of disease 12·0 grammes of Arsenophenylglycin, and 40 days later a second injection, 15·0 grammes. After the first dose the temperature took a nearly normal curve but on the 33rd day following the second injection, fever returned, and on the 4th day of the paroxysm a 3rd dose of 10·0 grammes was given. A normal curve for 12 days, subfebrile elevation for 4 days, and 2 months intermission, followed successfully, the latter terminating in a general œdematous urticaria rapidly diffusing over the whole of the body surface, head and limbs, and a rise in temperature to 104° F. These are the last symptoms recorded, for without further treatment the animal has apparently recovered, keeping in normal condition and health for more than 1 year.

9. A foal developing an acute infection received 7·0 grammes of the drug; the symptoms progressed rapidly and a 2nd injection of 9·0 grammes was given, after an interval of 10 days. Death occurred 2 days later.

Poisoning by Arsenophenylglycin.

10. A case of poisoning took place while determining the largest possible dose that could be tolerated or given with safety.

A healthy stallion, 2½ years of age, received an injection of 30·0 grammes of the drug, or an estimated dose of approximately 80mgm. (milligramme) per Kgm. (kilogramme) of body weight. There were no unusual immediate after effects, but all the next day the animal was very depressed, ate very little, dozed the greater part of the time or had frequent spells of yawning. On the morning of the 3rd day there was slight spasmodic contraction of the pharangeal muscles and difficulty in swallowing, the lips thickened; towards evening the depression wore off and gave way to excitement, rigours and nervous symptoms, death ensuing.

Dosage and administration.

Professor Ehrlich aims to produce with Arsenophenylglycin complete sterilization of the tissues 'at one blow,' and recommends an injection of the largest amount of the drug that can be borne. In my experiments 80mgm. per kilo body weight proved toxic and fatal; 70-75 mgm. per kilo were tolerated, though with some risk; 60-65 mgm. per kilo were well borne. However, the maximum dose that can be given to a small, lightweight animal, may be toxic if given in the same proportion to a large, heavy animal. That is to say, as the body weight increases the proportionate dose should be slightly decreased.

In all cases the drug was given intravenously, in 1 per cent solution, with a syphon.

Remarks.

The few experiments cited above do not afford evidence, from a practical standpoint, of a satisfactory method of treatment; some cases have recovered under drug influence, others without any treatment being given at all, and there are cases in which the progress of the disease has scarcely abated or been but slightly modified by any of the drugs employed excepting Arsenophenylglycin. A single dose of this preparation will cause the rapid disappearance of trypanosomes from the tissues haunted by them for weeks or months previously, œdema and local symptoms will disappear in unison, yet the characteristic type of fever recurs at stated intervals and though the parasites are never to be seen again the disease may progress to a fatal termination.

The variations in individual resistance and in different degrees of virulence are no doubt responsible for much of the apparent contradiction in results. It may be mentioned in passing that in some parts of Africa the treatment of Sleeping-Sickness with Arsenophenylglycin has been attended with marked success while in others it has as signally failed.

Dourine, while not by any means the most fatal of the animal trypanosomiases, is one of the most chronic and apparently the most resistant of any of them to the influence of drug-treatment.

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SESSIONAL PAPER No. 15c

APPENDIX No. XIII.

THE SWAMP FEVER OF HORSES.

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I. INTRODUCTION.

In many parts of the Canadian Northwest provinces, there exists a disease which is popularly called Swamp Fever. Its clinical features vary within wide limits, and it may run an acute or a chronic course. Consequently, it is not impossible that more than one disease may be included among the conditions usually diagnosed by Canadian veterinarians as Swamp Fever.

The disease is met with here and there throughout the northwest provinces from Winnipeg to Edmonton. It occurs most frequently in newly-settled undrained districts, and especially in low-lying localities where horses are fed upon hay or grass from the sloughs or swamps. The cases are usually occasional and few in number; sometimes, however, the disease occurs repeatedly on the same farm, or it may become almost an epizootic and carry off at once the majority of the horses from a farm, or from the outfit of a contractor engaged in railroad construction work.

Although equine diseases which resembled Swamp Fever had been noticed previously, Swamp Fever seems to have been first recognized as a distinct disease in or about 1880[1], and since then it has been widely identified. It has been shown to exist in many of the Western States, and several attempts have been made to determine its nature.

The object of the present communication is to review what is known of it and to record the results of the study of two cases of the disease. The first part of this paper is, consequently, almost wholly a compilation from the reports which are mentioned in the list of references; the latter part states the results of our own observations.

II. NOMENCLATURE.

Names mentioned in the literature, which are sometimes applied to Swamp Fever, are: American surra, malarial fever or typhoid fever of horses, unknown disease, no-name disease, plains' paralysis, pernicious anæmia.

III. HISTORY AND DISTRIBUTION.

The first definite mention of Swamp Fever in the literature records its presence about 1884 in cases under the care of Dr. J. G. Rutherford at Portage la Prairie in the Northwest Territory. Several cases are reported to have occurred in the early Red River Valley. Since then cases clinically identical with Swamp Fever have been reported to exist as far north as Dauphin and Yorkton, and as far west as Edmonton. It is not impossible that Swamp Fever may have existed unrecognized in many places in the Northwest Territory. Several cases are reported to have occurred in the early eighties about Prince Albert and at Red Deer.

In 1888 Commissioner Perry states that he lost forty horses out of a troop of one hundred and twenty from Swamp Fever at Red Deer.

More recently diseases diagnosed as Swamp Fever have been reported in the United States from Minnesota, Kansas, Nebraska, Colorado, Wyoming, Montana, North Dakota, Texas, and Nevada. It is impossible to determine from the records whether the disease has spread recently to the fresh localities from which it has been reported, or whether it is that its existence in them has only recently been recognized.

IV. ETIOLOGY.

As this name indicates, Swamp Fever frequently occurs in low-lying districts, and horses are often said to contract it through eating swamp hay or through drinking swamp water. It is said that horses have been saved from the disease on farms where it existed by preventing them from using grass or water from swamps.[3] The disease is less frequent than it formerly was in many localities; and it seems to disappear with the cultivation, and consequent draining, of the soil. The infection is particularly liable to become manifest between June and October; possibly because that is the time of year when farm work puts the heaviest strain on horses and, consequently, tends most to make any defect in them apparent. More cases occur in wet than in dry seasons.

> The disease is not contagious, as is proved by the experience of farmers who frequently stable healthy horses with diseased ones without spreading the disease.
>
> Bell and Torrance, during their experiments with Swamp Fever, kept 29 severely infected animals in Winnipeg without communicating the disease to any of the horses kept in the same stables.

Nevertheless, a number of horses occasionally contract the disease at about the same time, and a farm sometimes seems to be permanently infected by it.

> One farmer lost 14 horses in four years; another near Winnipeg, lost 40 in the same length of time. In 1908, a firm of contractors, working on the Grand Trunk Pacific railroad at Edmonton, lost 17 out of one gang of 28 horses, from Swamp Fever.

The pathogenic agent which produces Swamp Fever is unknown. Various bacteria have been described in connection with it; but none of them is specific. Very careful

searches have been made, through the tissues and body fluids of horses infected with Swamp Fever, for a specific animal parasite; none has been found.

The virus of Swamp Fever can be transmitted to equines by the inoculation of blood from an infected horse. Infected blood, or blood serum, is still infective after having been passed through a porcelain filter; the virus, consequently, is probably ultra-microscopic.

V. MORBID ANATOMY.

(*a*) *Gross appearances.*

The lesions found in animals which have died of Swamp Fever are usually surprisingly few in number and their severity is slight. If, as usual, the disease has lasted for some time, the body is wasted and the mucous membranes are anæmic. The skin may be abraded and cut through the animal's struggles during the period when it was too weak to rise. There may be œdema of the dependent portions of the body, such as the feet, sheath, abdomen, lower part of the legs and the side upon which the animal was lying while it was *in extremis*. If the disease has been a very chronic one, the muscles are wasted and pale and there is very little fat. The peritoneum, the pleura and the pericardium may contain a small amount of serous fluid; both the visceral and parietal surfaces of the abdominal peritoneum and of the pleuræ and pericardium may be dotted, more or less closely, with petechiæ. The heart is often enlarged, it may weigh as much as 12 or 14 pounds, and its muscle may be pale. The clot contained in the heart, and in the great vessels, is often very pale and yellow (chicken-fat clot); frequently the fat about the auriculo-ventricular groove is infiltrated with a yellowish, gelatinous œdema. The lungs are unchanged. The liver may be congested and enlarged; sometimes it seems to be degenerated. The spleen is often considerably enlarged and weighs as much as 6 pounds; it is sometimes congested and friable and may contain infarcts. The kidneys, often unchanged, are sometimes soft and friable. The lymphatic glands, especially those of the various intra-abdominal groups, are often enlarged and very hyperæmic and, sometimes, œdematous. The bone marrow is much redder than is normal.

In Mack's series of cases [14] the petechiæ of the serous surfaces were exceedingly numerous and they were occasionally confluent; in addition, there were distinct hæmorrhages into many of the organs, as, for example, in the spleen and beneath the endocardium. In the same series of cases the meninges were much congested and hæmorrhagic areas were described in the mucosa of the stomach.

As is mentioned below, the epidemic of 'Swamp Fever' described by the members of the Minnesota State Board of Health of 1903, was probably not identical with the disease which is known by that name in Canada. At the autopsies on cases of the disease described in Minnesota, abscesses were frequently found; pus has not been reported in the cases of Swamp Fever which have been examined in Canada.

(*b*) *Minute appearances.*

The heart muscle frequently shows cloudy swelling; sometimes the condition has gone on to fatty degeneration and actual necrosis. Hæmorrhages may occur beneath the endocardium or epicardium and into the myocardium.

The lungs may be congested and small areas of consolidation are occasionally seen. The alveolar cells often contain pigment.

The liver is congested; sometimes the hyperæmia is intense, and blood may be extravasted into the substance of the organ as well as beneath its capsule. Areas of degeneration, especially at the centre of the lobule, are not uncommon, and sometimes, the degenerated liver cells are more or less completely replaced by immigrating leucocytes, by plasma cells and by débris. The liver cells always contain a large amount of iron-bearing pigment.

The spleen is congested and may contain areas of infarction. It contains much iron-bearing pigment. Areas of amyloid degeneration, increase of fibrous tissue and proliferation of endothelial cells in the lymph spaces have also been observed.

There is marked parenchymatous degeneration of the kidneys; they are congested and between the tubules there may be free red and white cells.

The lymph glands are hyperæmic and œdematous.

VI. SYMPTOMS AND COURSE OF THE DISEASE.

Swamp Fever is characterized by progressive weakness, wasting and anæmia, and by an irregularly intermitting fever.

Usually the first sign of the disease to be noticed is that an active horse has become listless and easily tired; at this time an examination usually fails to reveal any cause for the change. The gait becomes uncertain, and a definite weakness of the loins and hind legs appears. The temperature varies much and is exceedingly irregular; it may be as high as 103°—it may reach 106°. The pulse is weak and rapid; it may run as high as from 50 to 70 beats to the minute. Although the pulse rate is high, its rapidity does not increase in proportion to the height of the temperature; for example, a temperature of 105° may be accompanied by a pulse rate of only 50. The pulse, especially in advanced cases, is characterized by a distinctive 'thrill,' which is described as feeling 'as though the vessel were not quite filled.'

It is characteristic of Swamp Fever that the appetite remains good all through the disease, and even almost to its termination; but, in spite of the large amounts of food which they may consume, horses in the last stage of Swamp Fever are always in exceedingly poor condition. The coat stares, they are very thin, and anæmia is excessive. Polyuria is often present, and, in advanced cases, the urine may be albuminous. The mucous membrane is very pale and petechial hæmorrhages may be seen in the *membrana nictitans,* in the nostrils and in the mouth. Blood serum may ooze from the mucous membrane of the nostrils.

A blood clot count made at this time will show that the blood only contains from two to three millions of red cells to each cubic millimetre. The white cells are slightly fewer than normal (4,000-8,000); but there may be an increase in the number of lymphocytes present. The hæmoglobin is much reduced; an estimate of the amount present may only give from 30 per cent to 50 per cent.

As the disease nears its end, the weakness and emaciation become extreme. The heart labours so that its beating is easily seen and, sometimes, it can be heard at some distance. Sweating, either in small areas, or over the whole of the body, often occurs; death follows from exhaustion or from syncope.

Though the disease may progress steadily towards a fatal termination, there are, as a rule, temporary improvements during which the animal seems to be about to recover. Almost invariably, however, there is a relapse. A few extremely acute cases may die in two or three weeks; the disease ordinarily lasts for two or three months—chronic cases may live for many months or even years. Most veterinarians believe that the disease is always fatal. The animal insurance companies state that 70 per cent of the death claims, made in Manitoba for horses, are made because of Swamp Fever.

A very fatal disease, locally called Swamp Fever, occurs among horses in Minnesota. In 1903, the State Board of Health published a very complete report on it.[2] In addition to giving an excellent description of the disease and recording the investigations made by the Board, the report contains a bibliography of Swamp Fever.

The disease described in Minnesota presents, in a much severer form, all the symptoms of the disease as it is usually observed in Canada. The Minnesota disease is usually an acute one and the animal may die within a week or two, and before the anæmia has become excessively pronounced; the usual duration of the disease is from

four to six weeks. On the other hand, the anæmia may be extreme in cases in which the disease lasts longer; for example, there may be only 20 per cent of hæmoglobin and less than a million red cells.

An ulcer is sometimes seen within the lower lip of horses with this disease, and the petechiæ of the mucous membrane is much more marked than they are in the Canadian disease. There may be distinct hæmorrhages beneath any of the serous surfaces or into the tissues of any of the organs; subcutaneous, intramuscular or interfacial hæmorrhages also occur; hæmorrhages into the subcutaneous œdematous areas are frequently seen. The hæmorrhages are most marked in the advanced cases of the disease. Polyuria is a marked symptom and, at the autopsies, parenchymatous nephritis may be found to be present. Cardiac hypertrophy is well marked and thrombosis of the abdominal vessels is occasionally seen.

One group of lesions very definitely separates the diseases studied in Minnesota from that observed in Canada; distinct evidence of inflammation accompanied by pus, or fibrous adhesions, were frequently found in the peritoneum, the pleuræ, the pericardium, and in the joints; abscesses were frequently found among the muscles. Such appearances never occur in the Canadian disease. From these lesions, as well as from other body fluids, two bacteria—*Bacillus equisepticus* and *Bacillus pyogenes equinus*—were isolated with great constancy. Sub-inoculations of cultures of *Bacillus equisepticus* produced symptoms, more severe than those observed in nature, but similar to them; the experimental disease caused death more quickly than did the natural disease.

VII. DIAGNOSIS.

It would be surprising if other diseases were not confused with one in which the symptoms are so indefinite, and in which the course of the infection may vary so widely; indeed, where Swamp Fever is common the tendency is to class under that heading all febrile conditions of an uncertain nature.

Mack [15] meets the difficulty by describing four different types of the disease: the fulminant, in which horses die after a few hours' illness; the acute, in which the disease lasts from five to seven days; the sub-acute, in which death comes after a few weeks or several months; and the chronic type, in which the animal may live for some years.

On the other hand, Canadian authors [18] are inclined to limit the name 'Swamp Fever' to the more chronic type of the disease, and they recognize, under other names, more acute diseases and those which do not present the symptoms which have come to be recognized as characteristic of Swamp Fever.

Diagnosis is especially difficult in early cases, from which definite symptoms are absent. On the other hand, it is easily made in advanced cases, in which the symptoms are well marked. A horse which has a good appetite and a 'wobbling' gait and is suffering from an irregular fever, which is accompanied by weakness, emaciation, anæmia and, perhaps, by polyuria and a 'thrilling' pulse, is said to be suffering from 'Swamp Fever,' especially if it be seen in a locality where that disease exists.

Until the specific causes of the disease concerned are definitely recognized, it seems useless, from a consideration of the clinical manifestations, to discuss whether more than one disease may be included among the conditions which are recognized as Swamp Fever, or whether Swamp Fever be identical with diseases, such as European Infectious Anæmia, in which similar symptoms occur.

VIII. TREATMENT.

Many drugs have been used in attempts to treat Swamp Fever. None of them has proved to be a specific for the disease. A symptomatic treatment has often been

reported to have been of benefit. Good food and tonics, such as *nux vomica,* iron and arsenic, are given for the anæmia; the fever has been controlled by antipyretics, such as quinine and acetanilid, and by cold spongings and cold enemata. Vermifuges and intestinal antiseptics, such as salol, have been given to remove harmful fauna, or flora, from the alimentary tract. Mercury, the iodides and silver salts, have also been given; they have been valueless.

IX. OBSERVATIONS ON TWO CASES OF SWAMP FEVER.

Two horses, suffering from Swamp Fever, were sent to us in January, 1910, through the kindness of Dr. J. G. Rutherford, the Veterinary Director General and Live Stock Commissioner of the Department of Agriculture of the Dominion of Canada. Our thanks are due to Dr. Rutherford's Department for these animals and for financial assistance, which has assisted us in undertaking the investigations recorded in the present paper. The disease was diagnosed in both animals by Dr. McGilvray, of Winnipeg.

Case 1: Black Gelding.

Age, about 10 years; weight, 1,020 lbs.; received January 19, 1910.

This horse came from Oakville, Manitoba. It was first noticed to be ill during the latter part of June, 1910. It gradually became unfit for work, and it has been in its present condition for several weeks.

Present condition.—The horse is extremely weak, the gait is unsteady, and the weakness of the hind quarters is very marked. It is very thin and the abdomen is prominent and pendulous. The coat is very rough and seborrhæic. The chest and the whole of the abdomen is œdematous. No œdema can be detected on the legs. The mucous membrane is pale. There are no petechial hæmorrhages in the mouth, nostrils or eyes. The appetite for food and drink is excellent. Urine is frequently passed. Anæmia is pronounced; there are only 2,400,000 red cells to each cubic millimetre of blood and only 20 per cent (2 counts) of hæmoglobin; the hæmoglobin was estimated with Sahli's hæmoglobinometer. There is marked poikylocytosis and basophilia of the red cells.

On the 20th of January, the pulse rate was 72 and the temperature 102°. From then until the 23rd, the temperature steadily fell. On January 23, the animal was *in extremis* and the temperature was 96°. It was therefore killed and an autopsy was made at once.

Autopsy: (a) *Gross Appearances.*

There is no sub-cutaneous fat. On the dependent side of the body, the subcutaneous tissues are deep yellow, translucid and œdematous for a depth of one centimetre. The muscles are deep red, uniform and normal in appearance.

There is no free liquid in the peritoneal cavity. On the liver and hepatic diaphragm there are many fibrous tags, measuring from 8 to 12 mm. in length and 1½ mm. in diameter. In addition, there is a small area of strong, firm adhesions between the liver and the diaphragm. The lymph glands of the meso-colon are distinctly enlarged, œdematous and hyperæmic. Two peritoneal lymph glands lying near the kidney, are also distinctly hyperæmic; in these glands there are small white areas from one to three millimetres in diameter. The peribronchial lymph glands are normal. The lymph duct is much distended with a clear, pale reddish fluid.

The left pleura contains about a litre of slightly turbid fluid and there is a slight fibrous pleurisy. The right cavity contains no liquid or adhesions. The pericardial cavity contains about 300 cc. of clear fluid.

Heart.—(10½ lbs.) The valves and endocardium are normal; the myocardium is firm and pale, but uniform in colour and consistency. The aorta is normal.

Lungs.—(Right, 6½ lbs.; left, 7 lbs.) Both are normal. The bronchial lymph glands are not enlarged; there is marked œdema of the mediastinal tissues.

Spleen.—(4 lbs.) Capsule seems slightly thickened; the substance is firm.

Liver.—(26½ lbs.) Appears to be normal.

Gastro-intestinal tract.—The mucosa is normal. The colon contains many *Sclerostomum armatum;* in the cæcum one of these worms was found in a small submucosal abscess.

Pancreas.—Normal.

Kidneys.—(Together, 5½ lbs.) Both kidneys are similar in appearance; the cortices are translucent and yellowish; the papillæ of the pyramids are prominent but colourless, their bases are pale red, the apices yellow and translucent; the pelves are œdematous.

Adrenal Glands.—Both normal.

Bone Marrow.—That of the long bones is yellow and fatty; that from the short bones is firm and dark red.

Brain and Spinal Cord.—Normal.

(b) *Minute Appearances.*

Heart.—Normal.

Lung.—Moderately injected. The alveolar walls are slightly tortuous, the capillaries are filled with blood, and, in foci, are packed with cells. Some of the cells are phagocytic and contain red corpuscles, brown pigment or nuclear remains. There are other groups of cells with basic-staining protoplasm and nuclei resembling those of lymphocytes. Throughout the sections, there is much bright brown pigment and, occasionally, clusters of delicate rod-shaped crystals. The cell masses produce elevations projecting into the lumen of the vessels. The pleura and interlobular septa show evidences of slight œdema.

Spleen.—Moderately injected, otherwise normal.

Liver.—There is very extensive central necrosis throughout the organ, and the lesions present various stages of the process, the earliest being represented by masses of hyaline, degenerated liver cells. The later stages show complete absence of liver cells in the centres of lobules with degenerative processes, evidenced by mitosis in liver cells, at the periphery. Polymorphnuclear leucocytes are few in number; the collections of cells consist chiefly of lymphocytes and of phagocytic cells which contain bile pigment and bright brown refractive pigment. Throughout the liver there are collections of lymphocytes and mononuclear cells in the sinusoids. The bile ducts and vessels are negative. No bacteria were seen in sections stained by Gram's stain or by methylene blue and eosin. Many endothelial cells of the sinusoids throughout the liver contain light brown pigment. The portal spaces contain collections of lymphocytes.

Pancreas.—Normal.

Kidney.—Many glomeruli are nearly bloodless, because of the obstruction of the capillaries by cells; these cells are large, mononuclear ones and many contain light brown pigment. Occasionally, there are among them a few polymorphnuclear leucocytes and large cells containing hyaline drops. The tubules show slight evidences of cloudy swelling, and there are occasional groups of lymphoid and plasma cells between the tubules. The connective tissue of the apices and of the pyramids is œdematous and contains occasional mitotic figures. The blood vessels are normal. There are a few hyaline drops and vacuoles in the epithelial cells of the pelvis.

Adrenal.—Normal.

Parotid Gland.—Normal.

Muscle.—A few of the fibres of muscle taken from the diaphragm and leg contain cysts of *Sarcosporidium.* The fibres are very slightly enlarged by the cysts.

Intestines.—Sections from large and small gut are negative except for lesions due to the attachment of *Sclerostomum equinum,* in the large gut.

Bladder.—Negative, except for some œdema of tissues beneath the peritoneal coat.

Lymph glands.—The superficial lymph glands are normal. Those from the peritoneal and thoracic cavities all show marked congestion and dilated lymph sinuses. The surrounding alveolar tissues usually contain dilated lymph vessels. Another constant finding is the presence of blood pigment in phagocytic, mononuclear cells with inclusions of red blood corpuscles, pigment and lymphoid cells. There is no necrosis. Occasionally lymph sinuses contain fibrin and large mononuclear cells and a few red blood corpuscles. Clusters of large mononuclear cells, containing minute granules and vacuoles, are common in the reticulum of many glands. In one gland there are several giant cells of the bone marrow type.

Bone Marrow.—That from the femur is fatty and contains no blood forming elements; that from the rib is active and normal in appearance.

Brain Cortex.—Normal.

Spinal Cord.—Normal.

Peripheral nerves.—Normal.

Case 2: Grey Gelding.

Age, 17; weight, 1,205 lbs.; received January 19, 1910.

This animal also came from Oakville, Manitoba. It was first noticed to be ill in July, 1909; since then it has been only fit for work at intervals. On the 7th of January, its pulse was 60 and its temperature 99°. There was slight œdema of the abdomen and marked anæmia of the mucous membrane. The heart sounds were increased and polyuria was present. The horse was said to be becoming steadily thinner in spite of a good appetite.

Present condition.—The horse seems to be practically healthy. The gait is slow, but not uncertain; and the horse is thin, but not emaciated. The only œdema to be detected is a slight thickening of the sheath; the mucous membranes are not very pale and there are no petechiæ. The blood count shows that there is a slight anæmia; there are 6,500,000 red cells and about 60 per cent of hæmoglobin.

Course of the disease.—On April 23rd the horse was much improved; it weighed 1,360 lbs., its pulse rate was 44, and its temperature, which was usually about 100°, had not been above 101° since its arrival. There was no anæmia. A blood count gave; red cells 8,500,000, white cells 16,000, hæmoglobin 70 per cent. At the middle of May and at the commencement of June there were slight rises in temperature, lasting for a day, or—at most—two, to 102°. The rise at the end of June was due to an abscess in the hoof. At the end of June the horse weighed 1,230 lbs. He seemed healthy and was worked almost daily. A blood count gave; red cells 8,500,000, white cells, 11,600, hæmoglobin 75 per cent.

A differential count was made of 500 white cells from two slides, with the following result:—

Polymorphnuclears	71·5	per cent.
Lymphocytes	16·5	"
Large mononuclears	6·00	"
Eosiniphiles	3·75	"
Transitionals	2·25	"
	100·00	"

At the present date, October 31, 1910, the horse seems to be in perfect health; it weighs 1,380 lbs.; its pulse rate is about 35; its temperature is normal and there is no sign of œdemas or petechial hæmorrhages. It seems possible that an occasional rise, during the summer, of its temperature may be accounted for by a more than usually severe day's work.

If it were not for the distinct rises in temperature which followed the inoculation of blood from this Grey Gelding into, especially, Horse No. 2, and also into Horse No. 4 and No. 5, it would be permissable to question whether it were ever infected with Swamp Fever. As it is, it seems as though this were a case from which the symptoms have disappeared temporarily or, it may be permanently.

The Black Gelding was an undoubted case of Swamp Fever; it died twelve months after symptoms were first noted.

X. *Sub-inoculations.*

It has been shown [15] that Swamp Fever can be transmitted to horses, mules or donkeys by the inoculation of blood, or blood serum, from infected animals; 5ccm. of blood is sufficient to transmit the disease. The blood of infected animals is infective up to 24 hours after death. The period of incubation, between inoculation and the appearance of the first symptom,—a rise in temperature—lasts for from ten days to 1½ months. In horses the experimental disease runs a chronic course and lasts for from two months to one and a half years, or longer.

Attempts to inoculate guinea pigs, rabbits, cats, dogs and cattle have failed.

The results of our attempts to transmit the disease are recorded below.

A. *Horses.*

Horse I.: Bay Gelding.

Weight, 1,656 lbs.; age, 8 (?).

This horse had a very marked elephantoid condition of both hind legs, caused by a chronic lymphangitis; possibly some of the irregularities of temperature may have been due to it.

The animal was inoculated, intraperitoneally, on January 23, with 35 ccm. of pure blood taken from the Black Gelding (temperature 96°) a few hours before its death. A week later the temperature rose to 102°, and, although it was irregular and fell daily, the temperature continued to rise during the whole of that week until it reached 106·4°. The temperature still remained irregular, but it fell gradually during the next week until it reached 99·4°, when it again rose for five days and remained for three days between 104° and 105·5°. The animal was now quite weak and, during six weeks, the temperature usually remained between 100° and 101°; on two occasions it reached 102°. On May 27 the horse was down and unable to rise. It was consequently killed by a blow on the head in order that an autopsy might be performed.

The pulse rate was usually low. With a temperature of 103·6° it was 48; just before death, with a temperature of 100·4°, it was 32.

During the course of the illness, no œdemas—other than the elephantoid condition mentioned—or other gross clinical signs were observed. The appetite always remained good and, until nine weeks before its death, the horse seemed to be as strong as ever.

The following blood count was made on May 27, 1910, the day on which the animal was killed. Red cells, 10,600,000; white cells, 29,500; hæmoglobin, 115 per cent.

Differential count—

	Per cent.
Polymorphnuclears	85·00
Lymphocytes	12·50
Large mononuclears	2·00
Eosinophiles	·50
	100·00

Autopsy: (a) *Gross Appearances.*

Both hind legs are greatly swollen and there is a large bruise over the chest due to a fall. On incision, there is no subcutaneous fat; the muscles are normal in appearance. There is a small amount of subcutaneous, yellowish œdema over the bruise on the chest; the muscles beneath this area are deep red and seem to contain extravasated blood. On cutting into the bruised mass, small areas of pus, the size of millet grains, are found.

The peritoneal and pleural cavities contain no free liquid. The pericardium contains about 100 ccm. of clear, yellowish fluid. The heart, lungs and bronchial lymph glands are normal. One or two of the lymph glands in the mediastinum are slightly enlarged, firm and congested.

On the under surface of the diaphragm there are a few small, old, fibrous tags.

The spleen, liver, kidneys and pancreas are normal in size and appearance.

All the abdominal glands are normal in size and appearance with the exception of two from the mesentery and small gut, which are distinctly enlarged and congested. The prevertibral lymph glands from the lumbar region are also enlarged and congested; the thyroid, parathyroid, parotid and sub-maxillary glands are normal.

The brain, spinal cord and bone marrow are normal in appearance.

The intestines are normal; they contain a few *Sclerostomum tetracanthum.*

The swelling on the hind legs is due to a thick layer of extremely firm, fibrous tissue. The joints are unaffected and there is no sign of recent inflammation.

(b) *Minute Appearances.*

Heart.—Markedly injected; otherwise normal.

Lung.—There is very marked injection. The alveolar capillaries contain numerous phagocytic cells with blood corpuscles, pigment and polymorphnuclear leucocytes as inclusions. A few veins have small elevations of the intima, caused by collections of large mononuclear cells, containing light brown pigment, and lymphoid and plasma cells. In one instance there is a thrombus attached to one of these lesions. A portion of one section is composed of collapsed alveoli with greatly distended capillaries in the tortuous walls. The small bronchi are collapsed but do not contain exudate. Throughout the sections there are numerous cells containing light brown pigment, distributed chiefly in the aveolar capillaries and about small veins and arteries.

Spleen.—The secondary follicles are normal. The pulp is moderately injected and contains large quantities of light brown pigment, in the form of spherules, and granules packed in cells. There are numerous phagocytes, attached to the reticulum, which contain, chiefly lymphoid cells.

Liver.—There are very many small foci of infiltration with lymphocytes and phagocytic cells, the latter containing pale brown pigment. In these foci there are often a few necrotic liver cells and polymorphnuclear leucocytes; but, for the greater part, these foci seem to lie between the liver columns and sinusoids and do not contain degenerated liver cells. The organ is considerably congested. There is a very

slight increase of connective tissues about the portal canals. In many places there is a thin layer of hyaline material between the liver columns and sinusoids. The bile ducts and vessels are normal.

Pancreas.—There are occasional small areas of fibrosis in the lobules, otherwise the organ is normal.

Kidney.—The glomeruli are injected but are otherwise normal. There are foci of marked parenchymatous degeneration of the convoluted tubules; in these areas there are a few immigrating polymorphnuclear leucocytes. Some of the collecting tubules contain hyaline casts and leucocytes. There is a small amount of greenish brown pigment in epithelium of the tubules.

Adrenal.—Normal.

Thyroid.—Contains traces only of colloid material.

Parathyroid.—Normal.

Salivary gland.—Normal.

Muscle.—Muscle fibres from the chest wall, œsophagus, and one of the skeletal muscles contain *Sarcosporidium;* none are seen in muscle from two positions in the diaphragm. In the muscle from the bruised area on the chest, there are abscess cavities and suppurating tracts containing clumps of bacteria (cocci in chains and pairs). In many places granulating tissue surrounds the pus cavities.

Œsophagus.—Mucosa and wall normal, except for *Sarcosporidium* in the striped muscle coat.

Lymph glands.—Five sections show hæmo-lymph glands which are negative. Three other lymph glands are also negative except for a large amount of brown pigment in phagocytic cells.

One bronchial lymph gland is negative. Another bronchial lymph gland which, at the autopsy, was seen to be spongy and to contain air-filled cavities, has many round and oval cavities with smooth lining of flattened or cuboidal cells. There are many giant cells around these cysts. The intervening tissue resembles fibrosed lymphoid tissue and contains some carbon pigment.

Tissue from swollen leg.—Consists of dense fibrous tissue with numerous blood vessels surrounded by lymphoid and plasma cells.

Brain cortex,—Normal.

Spinal cord.—Normal.

Pituitary body.—Normal.

Horse II. Chestnut Gelding.

Weight, 960 lbs.; age, 6 (?).

This horse was inoculated intraperitoneally on February 4, 1910, with 30 ccm. of blood from Grey Gelding (temperature, 100·4°). Twelve days later the temperature commenced to rise, and it rose steadily, until, on the fifteenth day, it reached 106·1°; after two days it fell to between 100° and 102°, where it remained for ten days, when it again rose to 103°. For six weeks the temperature was exceedingly irregular; at intervals of ten days there were three rises to 103·5°, with pulse rates of from 38 to 44. At this time the horse was much weaker; it weighed only 845 lbs., and the temperature, while still irregular, remained between 90° and 101°. Anæmia was not marked (red cells, 5,360,000; white cells, 16,200). During the last three weeks of its life, the horse was extremely weak, although it fed and drank readily until its death. No œdemas nor petechiæ were seen. For one day before it died, it was unable to rise. It died during the night of May 12.

Autopsy: (a) *Gross Appearances.*

The autopsy was commenced within twelve hours after death. *Rigor mortis* was present but the organs were distinctly warm.

The coat is rough. There are no œdemas. The animal is extremely thin; the muscles seem normal. A few adult filariæ (*Filaria papillosa*) lie among the coils of the intestine. There are no petechial hæmorrhages, and the cavity does not contain an excessive amount of fluid. The pleural cavities each contain about 500 ccm. of clear yellowish fluid.

Heart.—(7½ lbs.). The muscle is distinctly pale and seems cloudy. The pericardial fat is œdematous and infiltrated with a gelatinoid, yellowish œdema. The heart valves and great vessels are normal.

Lungs.—(Right, 10½ lbs.; left, 9½ lbs.). Both lungs are congested and slightly œdematous. The right lung is the more congested of the two and, in one small area, there seems to be an extravasation of blood.

Liver.—(17 lbs.) With the exception of a few scattered spots, which are paler than the remainder of the organ, the liver seems to be normal.

Kidneys.—(Together, 4 lbs.) The substance seems to be normal.

Spleen.—(3½ lbs.) The capsule is somewhat thickened and the whole of its surface is dotted with very numerous petechial hæmorrhages.

Adrenals and Pancreas.—Normal.

The Bladder is normal and contains a fair amount of cloudy urine. The turbidity is caused by urates, although there are a few pus cells present.

The Marrow of the long bones is firm and yellow. The surface of the *brain* is somewhat congested; the dura seems normal. The mucosa of the *alimentary canal* is normal throughout; the gut contains a large number of *Oxyuris equi* and a few *Sclerostomum tetracanthum.* None of the *lymph glands* are markedly enlarged or congested; one small abdominal gland is hæmorrhagic, and one section is found to contain a small filaria (*Filaria papillosa*).

(b) *Minute Appearances.*

Heart.—Normal.

Lung.—Markedly congested. One section contains a very recent hæmorrhagic infarct.

Spleen.—There is extreme congestion with small hæmorrhages into the pulp. The secondary follicles are represented by a few cells. There is much bright, yellow brown pigment in phagocytic cells throughout the organ. The trabeculæ contain many migrating polymorphnuclear leucocytes.

Liver.—There are a great many focal necroses of small size and irregular distribution, each consisting of a few necrotic liver cells or of remains and collections of endothelial cells, lymphocytes and occasional polymorphnuclear leucocytes. Many of the endothelial cells contain light brown refractive pigment. A few bile ducts contain inspissated bile but are not distended.

Kidneys.—There is no pronounced lesion. The tissue is much altered by *post mortem* changes.

Pancreas.—*Post mortem* changes only.

Adrenal.—Normal.

Muscle.—Tissue from a skeletal muscle and from the diaphragm contains *Sarcosporidium.*

Lymph Glands.—All show very marked congestion, but contain only small amounts of pigment. The sinuses contain only a few endothelial cells. In two glands the reticular tissue contains clusters of endothelial cells, some of which contain brown pigment; others are vacuolated.

Brain Cortex.—Normal.

Spinal Cord.—Normal.

Peripheral Nerve.—Normal.

Horse III.—Brown Mare.

Weight, 970 lbs.; age, 10.

On February 18, 1910, this horse was inoculated intraperitoneally with 20 ccm. of blood taken from Horse 1 (temperature 105·5°). Eight days later there was a rise in its temperature for one day to 103°; a similar rise occurred in the week following. Four weeks after the inoculation, the temperature rose on two successive days to 105·5°. The temperature then fell and, until the 20th of July, it remained between 100° and 101·5°. The pulse rate was low; during the first rise in temperature to 103°, it was 46; and during the rise to 105° it was 53. No œdemas or other gross clinical signs occurred and the animal put on flesh until it weighed over 1,000 lbs. On the 21st of July 970 ccm. of blood were transfused into its jugular vein from Horse V., which, on the previous day had had a rise in temperature to 103·5°. Sixteen days later there was a slight rise in temperature to 103·5°. Since then to the present date, October 31, the temperature has been approximately normal; its pulse rate is about 45, it weighs 1,030 lbs. and it has shown no sign of disease.

November 5, 1910. Yesterday the mare seemed to be in good health; early this morning she was noticed to be breathing quickly, and at about 11 o'clock she was down and died suddenly. The autopsy was commenced six hours later.

Autopsy.

There were no œdemas and little fat; muscles were normal in colour; the peritoneal and pericardial cavities contain no fluid; over the lower part of the colon and over the upper surface of the liver, there were numerous, old fibrous tags. With the exception of the spleen (weight, 2¾ lbs.) all the peritoneal organs were normal in appearance. The capsule of the spleen was covered with very numerous pin-head petechiæ. The heart was normal; the whole of the lower lobe of the right lung was consolidated. The abdominal and lymphatic glands were normal.

Cause of death: pneumonia.

Horse IV.—Red Gelding.

Weight, 775 lbs.; age, 26.

This animal was inoculated intraperitoneally on March 17, 1910, with 40 ccm. of blood from the Grey Gelding (temperature steadily normal). The temperature remained unchanged for two weeks, when it rose to 103·2°. It then fell and remained between 100° and 101° for five weeks save for one period, when it rose for three days to 102°. After that the temperature was rather irregular, but it never went above 101°; pulse, 45. No œdemas or other gross clinical signs were seen in this animal at any time. There was distinct anæmia; red cells, 5,100,000; white cells, 6,900. On the 21st of July, 860 ccm. of blood were transfused into it from Horse V. (on the previous day the temperature of this animal had been up to 103·5°). No rise in temperature followed the transfusion and the animal seemed to be as well as usual and with its usual appetite. On July 31 it was down and unable to rise; it struggled continually and perspired very freely; it was killed by a blow on the head and an autopsy was commenced at once.

Autopsy: (a) Gross appearances..

Rigor mortis came on very quickly. The muscles seem to be normal. The only œdema found is a light infiltration of the subcutaneous tissues on the side on which the horse lay before death. There is no excessive fluid in the peritoneal cavity; it contains a few filariæ (*Filaria papillosa*). The pleural cavities are normal.

Heart.—The epicardium, heart muscle and endocardium are normal. On the mitral value there is a small subendocardial, extravasation of blood and, on its auricular surface, there is an old firm vegetation. The great vessels are normal.

Lungs.—Normal.

Spleen.—The spleen is not enlarged. The surface is thickly covered with small, irregular, petechial hæmorrhages; these are particularly marked on the lower portion of the diaphragmatic surface.

Liver.—Seems normal in size and substance.

Kidneys.—Are somewhat injected but otherwise normal.

Pancreas.—Normal.

Alimentary tract.—Normal. There are many bots attached to the stomach and many *Sclerostomum equinum* in the intestine.

The Mesenteric lymph glands are enlarged and deeply congested; the other lymph glands are normal.

(b) Minute appearances.

Heart.—Negative.

Lung.—Moderately injected only.

Spleen.—Markedly injected. There is a moderate amount of brown pigment in the pulp.

Liver.—Markedly injected. There is a lymphoid and plasma cell infiltration of the portal canals, which also contain numerous brown-pigment-containing cells.

Pancreas.—Normal.

Kidneys.—Normal, except for occasional clusters of green pigment granules in cells of convoluted tubules. Rarely, the amount of green pigment is large, filling all the cells in the cross section of a tubule.

Adrenal.—Normal.

Muscle.—There are numerous *sarcosporidium* in the diaphragm. There are very many large ones in the voluntary muscle coat of the œsophagus; in this situation the cysts are more numerous and of a larger size than in any of the horses (Black Gelding, Horses I. and II.).

Doudenum.—Normal, except for curious collections, in the sub-mucosa, of cells containing large hyaline drops and bluish green pigment; the latter is possibly iron pigment acted upon by H_2S.

Bone Marrow.—The marrow of the long bones is fatty and contains no blood-forming cells.

Lymph Glands.—One bronchial lymph gland is normal. Another shows moderate congestion. Another gland, containing carbon pigment, has blood in all of the sinuses and resembles a hæmo-lymph gland. It contains many phagocytic cells inclosing pigment, red corpuscles and lymphoid cells.

Horse V.—Black.

Weight, 950 lbs; age, 10.

This animal was kept under observation for thirteen weeks; its temperature throughout this period remained very regular, between 99° and 101°, and its pulse

rate was about 52. On the 9th day of July, 450 ccm. of blood were transfused into its jugular vein from the grey gelding (temperature steadily normal). Twelve days later the temperature rose to 103·5°, and on three occasions during the first and second weeks in September, it reached 104°. It is possible that these rises may be partially accounted for by heavy work; for the animal has been worked continually and the temperature has frequently risen to 102°, or even to 103°. No œdemas, petechiæ or other gross clinical signs have been observed in this animal. It is nevertheless becoming steadily thinner, although the appetite remains good and the pulse rate and temperature are low.

October 12, 1910.—Weight, 940 lbs.; pulse, 50. There are no œdematous areas, or other physical signs, beyond slight wasting of the muscles.

November 7, 1910.—This animal has been becoming steadily weaker; wasting of the adductor muscles of the thighs has been especially marked. Two days ago the horse was down and was raised to his feet with difficulty. To-day he was down again and it was impossible to raise him. He was consequently killed by a blow on the head. The autopsy was commenced four hours later.

Autopsy.—There are no œdematous areas. The fat is scanty. Muscles are normal in colour. There is no fluid in the abdominal or thoracic cavities. There is a large, verminous aneurism, filled with recent clot, in the superior mesenteric artery. There are pin-point petechiæ over the surface of the spleen (weight, 2¾ lbs.); they are present on no other serous surface. With the exception of a few fibrous tags on the upper surface of the liver, all the organs, both abdominal and thoracic, are normal in appearance. Some of the lymph glands in the mesocolon are enlarged and œdematous; the glands of all the other groups, both internal and external, are normal in appearance.

An examination of the records of the inoculation of these horses yields the following facts:—

The inoculation of blood was followed in every instance by a rise of temperature in from 8 to 26 days (average, 14½ days).

It is interesting to note that a distinct rise in temperature occurred in Horse III, in fifteen days after it had received into its jugular vein a large quantity of blood from Horse V. Horse V. first received its infection from the Grey Gelding; Horse III. was first inoculated from Horse I, which had received its infection from the Black Gelding; when it was first inoculated there was a distinct rise in its temperature. It is interesting that the infection, originating from the Grey Gelding, was able to produce a rise in temperature in an animal which had already reacted to an inoculation with blood which derived its infection from the Black Gelding.

The disease led to the death of four horses in about four months after their inoculation; one died of pneumonia nine months after inoculation.

The course of the disease in these horses and the appearances observed at the autopsies were not dissimilar from those which are described in Swamp Fever.

B.— Other Animals.

Four guinea pigs, two mice, nine rats, two rabbits, ten dogs and puppies, two kittens, and one sheep were inoculated, at different periods, from the two original horses and from the horses (Nos. 1, 2, 3, 4 and 5) inoculated from them.

Large quantities of blood were always used; rats often received 10 ccm. and the kittens as much as 30 ccm.; other animals received proportionate amounts. So far as it was possible, the blood for inoculation was always taken from the horse while its temperature was higher than normal.

No symptoms, such as emaciation and rise of temperature, which might be attributed to Swamp Fever, followed the inoculation of any of these animals. Four of the rats and two guinea pigs, which received blood from the Black Gelding, died, from no apparent cause, about two months after the inoculation. Some of the animals died of intercurrent infections, such as pneumonia; others were killed in order that they might be examined. The remainder of the animals are still living and healthy. Careful *post mortem* examinations were made of all the animals that are dead; no constant lesions, either macroscopical or microscopical, have been found in any of them; in one or two the spleen was slightly enlarged; in one dog, the abdominal lymphatic glands were much enlarged and hæmorrhagic. Very marked anaphylacite phenomena, such as vomiting, purging, dypsnœa and, at the autopsy, œdema of the lungs, and congestion of the liver, were noted in puppies, rabbits and cats. The symptoms were observed at the first, second and third repetitions of inoculations of horse blood into animals which had previously received doses of blood from either the same or from another horse. The first doses of blood given measured about 10 ccm., the last ones about 30 ccm. for each animal.

XI. OBSERVATIONS ON CASES AND ON SUB-INOCULATIONS.

The blood of the original horses and of all the experimental animals was examined very carefully and almost daily, either in coverslip preparations or in stained films; and from time to time 10 ccm., or more, of blood from the horses was centrifugalized and examined.

During the summer of 1908, one of us spent five weeks in travelling through the Canadian middle-west, in search of cases of Swamp Fever. The trip was made in July, when cases were exceptionally scarce, and only four horses which seemed to be certainly suffering from the disease were found. In three of these horses the diagnosis was probably correct; in one it was doubtful. In the three animals which were probably infected, anæmia was marked; one of them had only 2,000,000 red cells, 8,000 white cells and a hæmoglobin count of 35 per cent. In one horse auto-agglutination of the red cells in fresh coverslip preparations of blood was very marked; it was also present in the Grey Gelding. The blood of all these three animals was carefully examined in fresh preparations, in smears and by centrifugalization. Nothing resembling a parasite was seen in any of them.

Although previous observers had examined the blood of animals suffering from Swamp Fever during long periods and at all hours of the day and night, we made extremely careful examinations of the blood of all of our animals because the symptoms of Swamp Fever are precisely those which are present in many trypanosome infections, and experience has shown that, as, for example, in Dourine and, sometimes, in infections by *Trypanosoma dimorphon*, an examination extending over months may fail to reveal the presence of the parasite which is causing the death of the animals infected by it. In spite of our search, no such parasite was found in any of our horses or in any of the animals inoculated from them.

At the autopsies of the horses infected with Swamp Fever, and of the various experimental animals, of all sorts, which were inoculated from them, smears were made from all of the tissues and body fluids. These smears were stained by a modification of Romanowsky's method and they were extremely carefully examined, on a mechanical stage, with the highest magnifications (Zeiss. Apo. No. 8 ocular; 1·5 mm. objective). No appearances, which could be thought to be parasites, were seen in any of them. Many smears, particularly those from the liver, lymph glands and spleen, contained peculiar bodies, similar to those which have been described by Mott [10] in the organs of dourine-infected animals. It is believed that, in our preparations, these bodies are merely the products of degenerated cells, or of cells destroyed in the making of smears.

These bodies measure from 2 inches to 5 inches in diameter. They are usually round or oval in shape. They consist of a dense area and of a matrix inclosing it. The denser area usually occupies about one-fourth of the whole area of the body and consists of a single granule, although, occasionally, there may be two. These areas stain very deeply with the colour taken by chromatin. The matrix usually takes a pinkish colour; occasionally, it is stained a bright blue.

Such bodies are usually found lying free in the organ smears. Occasionally they seem to lie within mononuclear white cells; frequently, appearances are seen which make it very evident that these bodies are formed by the fragmentation of the nuclei of cells.

The late Dr. Ballah, while he was attached to the Pathological Laboratory at McGill University, and later to the Government Laboratories at Regina, did a good deal of work on Swamp Fever. Some of the results of his work were published before his death [20]; he described the disease, his attempts to transmit it by inoculation and the appearances seen at the autopsies of animals dead from it. He also described bodies which he found in the livers.

Some of his material, which had not been reported upon, was sent to Dr. Adami; Dr. Adami kindly permitted us to examine it. Unfortunately, Dr. Ballah's notes on this material have been lost. It is certain, however, that it came from declared cases of Swamp Fever.

Case IV. (Dr. Ballah).

Post mortem changes are marked.

Lung.—Normal.

Spleen.—Moderately congested. There is much dark brown crystalline pigment in the pulp.

Liver.—Moderately congested. There are many focal necroses, similar to those described in the Black Gelding (see above), though the central necroses are not so abundant. The sinusoids contain many mononuclear cells, some of which are phagocytic. Others are lymphocytes; the remainder are probably endothelial in origin. The necroses contain large numbers of phagocytic cells and relatively few polymorphnuclear leucocytes. The liver cells adjacent to the necroses show degenerative changes, evidenced by pale-staining vaculization, and, occasionally invasion by leucocytes. There are groups of liver cells about the necroses which are filled with minute eosin-staining rings, one to two mm. in diameter; some of these rings contain central, or eccentric, eosin-stained dots. These bodies stand out more strikingly in sections stained by Gram's method and by iron hæmatoxylin, and bear some resemblance to Leishman's bodies; this is particularly so in specimens stained by Gram's method.

There is much dark brown pigment scattered throughout the liver cells and a smaller amount of paler brown perinuclear pigment.

The portal spaces are markedly infiltrated with lymphocytes.

The liver, as a whole, is very similar to that of the Black Gelding, but the *post mortem* changes are too great for a careful cytological study.

Kidneys.—Congested; glomeruli, normal. There is very slight lymphocytic infiltration of the interstitial tissue. There is probably slight cloudy swelling, but the state of the tissues make a reliable report impossible.

Case V. (Dr. Ballah).

Post mortem changes are marked.

Lung.—Normal.

Spleen.—There is extreme hyperæmia. The malphighian bodies are very small. The structure of the pulp is not distinguishable owing to the blood and, possibly,

also because of *post mortem* changes. There are many large cells containing dark brown pigment in the pulp.

Liver.—There are many small necroses similar to, but less extensive than, those seen in the preceding case. The pigmentation is also less marked and the ring bodies, though present, are less conspicuous.

Kidneys.—The glomeruli are normal. There is marked perivascular and interstitial infiltration with lymphoid and plasma cells. Slight cloudy swelling.

Lymph Glands.—Both sections show congestion. The sinuses contain blood, and many large phagocytic cells containing red blood corpuscles and pigment.

A portion of a liver taken from a horse which died from Swamp Fever was sent to us by Dr. Torrance, of Winnipeg. Sections were made of it and examined. The appearances seen were similar to those observed in the livers of our own cases.

XII. CULTURES.

The fact that Leishmania will develop conspicuous flagellating forms in tubes containing infected material, diluted with sodium citrate, and kept at room temperature, suggested that blood from our horses should be examined in the same way.

On January 23, 1910, (temperature 96°) blood was taken from the Black Gelding; 2 ccm. of it was placed in each of one dozen tubes and the blood was diluted with solutions so as to give tubes containing a mixture of blood and, from ·5 per cent to ·12 per cent of sodium citrate, other tubes contained a mixture of with from 1·4 per cent to ·35 per cent of sodium chloride. These tubes were placed in an incubator at 37° C. and, for two and a half weeks, they were examined daily, in fresh or stained preparation; no visible bacteria nor other parasites were seen in them, in fresh or stained preparations.

On April 2, 1910, blood was taken from the jugular vein of Horse IV. (temperature 103·2°). A mixture containing ·2 per cent of sodium chloride, and another mixture containing ·3 per cent of sodium citrate, was centrifugalised. Four hanging drop preparations were made of the white layer from each mixture; these preparations were kept at 37° and carefully examined at intervals during four days; no parasites nor bacteria were seen in them. Four tubes, two containing 5 ccm. of the sodium chloride mixture and two containing 5 ccm. of the citrate mixture, were kept at room temperature; four other such preparations were kept at 37°. All were examined at intervals during four days; no parasites nor bacteria were seen in them.

Quantities of blood, varying in amount from 2 ccm. to 500 ccm. were taken from the Black Gelding and from Horse IV; these were kept at room temperature or at 37°. They were examined constantly for a fortnight; no bacteria nor other parasites were seen in them.

Many observers (Peters, Torrance and Bell, Mack) have unsuccessfully attempted to cultivate a specific organism from the body fluids and tissues of cases of Swamp Fever. Dr. F. C. Harrison, Professor of Bacteriology at Macdonald College attempted to cultivate an organism from our cases; his efforts were also unsuccesful; they are briefly recorded below.

Black Gelding.

Material for infecting the culture media was taken from a vein in the leg, a vein in the abdomen, from the lymph duct, from the pericardium, from the spleen, from the kidneys, lungs, brain and from the bladder. Cultures on the following media were made with each material; beef broth, glycerine broth, beef peptone, beef peptone agar, beef peptone glucose agar, glycerine agar, milk, coagulated blood serum and urine.

The cultures made from the lung were contaminated. The culture tubes from the brain were also contaminated. The cultures made from the kidneys showed a slight turbidity in glycerine broth and some growth on the blood serum and on the glucose agar. Plates from this material showed the presence of microscopic colonies of a dipplococcus which stained by Gram's method. A similar organism was present in the lymphatic glands. The attempts to grow this organism in broths of various kinds failed; it would not live for more than four days in culture media.

Horse II.

With the exception that the culture media containing blood were prepared from blood drawn off, a few hours previously, from this animal, the routine followed in making the cultures from the Black Gelding was followed in making cultures from this horse.

With the exception of a few colonies which could be attributed to aerial contamination from the stable, the results obtained were entirely negative.

Cultures on blood peptone agar, beef peptone agar, and water agar were carefully examined, with high magnifications, at frequent intervals for a fortnight without result.

At the autopsy of this horse, culture tubes were again inoculated in the same way as before. Three organisms, none of them pathogenic to guinea-pigs, were isolated. Two were unidentified; one was *Mocrococcus varians lactis.*

It is of interest that this organism has been met with on several occasions at Macdonald College in the organs of animals. In one instance, it was isolated from the udder of a virgin heifer.

XIII. Summary.

The symptoms which were constant in our infected horses were, an irregular temperature, accompanied by weakness, emaciation and anæmia of varying severity; œdemas rarely occurred and petechiæ of the mucous membranes were not seen. When death occurred, it followed in from four to eight months after the appearance of symptoms. One horse, which has possibly recovered from the disease, is still healthy sixteen months, after the appearance of the disease.

At the autopsies, emaciation was the most constant feature. The spleens were markedly enlarged and, sometimes, congested; in two instances, their capsules were dotted with petechial hæmorrhages; sub-serous hæmorrhages, other than these were not seen. With the exception of an infarct of the lung in Horse II and of microscopical extravasations of blood into the spleen, hæmorrhages into the substance of organs were not seen. The internal lymphatic glands have usually been enlarged and much congested. Cloudy swelling of the heart muscle and of the kidneys and, also, a marked, yellowish, gelatinous œdema of the pericardial fat were constantly seen. Pus, and other evidence of active inflammatory changes, occurred in none of our autopsies; the abscess on the chest of experimental Horse I. was due to a fall, and the fibrous tags which were found on the diaphragmatic surface of the liver of the same animal were of too long standing for them to have been due to a disease produced by the inoculation.

The results of the microscopical examination of the organs were very constant. There has always been focal or central necrosis of the liver and a varying degree of acute parenchymatous degeneration of the kidneys; blood pigment has been deposited in the lungs, spleen, liver and lymph glands and these organs have contained many phagocytic endothelial cells which had often taken up red blood cells.

The ring bodies seen by us in the preparations of Ballah's (Cases IV. and V.) and reported by him (Annual Report of the Department of Agriculture of the Province of Saskatchewan, 1907, pp. 223-226), have also been seen by us, especially in

Case I. (Black Gelding). Similar bodies have been found by us in the liver of a normal dog, which was incubated at 37° C. for 4½ hours before fixation in Zenker's fluid. They have also been seen in a case of liver necrosis in man, due to Streptococcus infection. Our belief is that these bodies are formed by coagulation or precipitation of protein about droplets of soluble material.

Sarcosporidia were found in all of the horses, while *S. equinum* or *S. tetracanthum,* was almost always present. The liver lesions are of long duration and are evidently present throughout the course of the disease; the kidney lesions, in one case at least, must be regarded as terminal.

There is a marked anæmia; the red cells are greatly reduced in number and stain irregularly. The anæmia is probably due to a blood destruction; to it is due the pigmentation of all the organs which is so striking in all cases of the disease. The enlargement and changes in the lymph glands and spleen are probably secondary to the blood destruction.

All those who have worked with Swamp Fever agree in looking on blood destruction as the chief feature of the disease. The virus which causes the blood destruction and the method by which it acts, remain unknown.

Because of their failure to find any pathogenic agent, some observers have suggested that the symptoms of Swamp Fever might be produced by a toxin, and that the toxin might possibly be absorbed from the alimentary tract where it might be produced by bacteria or by animal parasites; it is well known that auto-intoxication occurs in constipation and that verminous anæmia may be produced by Sclerostomes. It has also been suggested that Sarcosporidia might account for some of the symptoms of Swamp Fever.

Neither of these suggestions is tenable, for the virus which causes Swamp Fever exists in and can be transmitted by the inoculation of the blood of infected animals. Sarcosporidial spores were not seen, outside of their cysts, in any of the numerous smears and sections which were made from our animals; and even although Sarcosporidia may possibly produce an intoxication they did not occur in our cases in sufficient numbers to account for the symptoms which existed.

XV. CONCLUSIONS.

Our cases were too few in number for it to be possible to draw definite conclusions from them. Our results do not differ from those obtained by previous observers; consequently, our observations will merely serve to confirm those of others who have preceded us in studying the disease.

Swamp Fever is a disease of the horse which is widely distributed in the Western United States and in Western Canada.

It is usually a chronic disease and is characterized by emaciation, weakness, irregular temperature and anæmia.

It is caused by an infecting agent, which can be transmited from horse to horse, by the inoculation of blood taken from an infected animal.

All search for a parasite which might cause the disease has been unsuccessful; although very large numbers of preparations of body fluids and tissues have been examined, at all stages of the disease, by microscopical and bacteriological methods.

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APPENDIX No. XIV.

J. A. Couture, D.V.S.

SUMMARY REPORT ON THE OPERATIONS OF LEVIS ANIMALS' QUARANTINE, FOR THE PERIOD EXTENDING FROM 1876 TO 1910, INCLUSIVE, ALSO ANNUAL REPORT FOR THE YEAR ENDING MARCH 31, 1911.

Lévis Animals' Quarantine,
March 31, 1911.

Sir,—I have the honour to send you this appendix to my annual report, in connection with the Lévis Animals' Quarantine, wherein will be found statistics and other information regarding that Station for the period extending from 1876, when it was established, up to 1910, inclusive.

HISTORICAL AND DESCRIPTIVE NOTES.

Previous to 1876 there was no quarantine system in North America. Foot-and-mouth disease had been introduced several times both in Canada and the United States. Contagious pleuro-pneumonia had also been imported into the United States in the early seventies and was extending steadily westward.

The Lévis Quarantine was established in 1876; cattle, sheep and swine were at first detained, with the consent of the owner, for eight days. Soon after the detention was made obligatory.

Description.—At the outset the Quarantine was within Fort No. 3. It gave sufficient accommodation till 1880. Then it was found necessary to gradually take possession of the government land around the Fort. However, the number of cattle which were being imported was increasing to such an extent that in 1883, though there was accommodation for 1,200 head of cattle, the Station was always crowded.

The more stringent quarantine regulations which followed the introduction of contagious pleuro-pneumonia in 1886 caused a considerable decrease in the importation of cattle during the next three years. The commercial depression which came then stopped importation almost completely, only a few head of cattle coming each year until 1898. However, sheep were being imported in large numbers from 1888 to 1893, but from that time to 1899 only a small number were imported every year.

During that period of depression, which lasted from 1890 to 1897, the buildings, from disuse, got out of repair and it was found necessary to rebuild them. In fact, a new Station was built after a carefully prepared plan. It comprises about sixty acres of land inclosed in a double fence.

The outer fence is a six foot close board one; the inner one is a four foot close board fence. There is an interval of sixty feet between the two fences; that interval isolates the whole Quarantine from the outside world.

The Station is divided into 26 blocks or lots of different size. Each lot is isolated from the neighbouring lots by streets 50 feet wide, and is enclosed by a six foot close board fence. Four of those lots are vacant, twenty are occupied by cattle sheds, two by sheep sheds. Each cattle shed accommodates from six to fifty cattle or three times as many sheep. The sheep sheds are made for 100 animals each. There are besides

three portable sheep sheds, accommodating about 200 animals in all. The vacant lots can be used for field sheep. Any of the cattle sheds can be easily arranged to accommodate swine.

Buildings.—The Station comprises 37 buildings, besides the 3 portable barns, viz.:—

20 cattle sheds.
2 sheep sheds.
1 receiving shed.
1 horse stable.
2 cart sheds.
2 implement sheds.
2 boiler houses.
2 pump houses.
1 hay barn.
2 houses for employees.
1 office building.
1 lime house.

Water is supplied by seven wells.

Capacity.—The capacity of the Station is as follows:—

20-cattle sheds for	503	cattle or	1,509	sheep.
2 stationery sheep sheds			200	"
3 portable "			200	"
4 fields			400	"
1 receiving or landing shed for	50	cattle or	150	"
Total..	553	"	2,459	"

Probation.—The length of probation has varied considerably according to circumstances and the origin of the animals imported. It has been as follows:—

For cattle—
From 1876 to 1879, inclusive—8 days in quarantine.
In 1880—90 days in quarantine.
From 1881 to 1902, inclusive—90 days from date of sailing.
From 1903 to 1909, inclusive—60 days from date of sailing.
From 1909—30 days in quarantine.

For sheep and swine—
From 1876 to 1880, inclusive—8 days in quarantine.
From 1881 to 1890, inclusive—inspection on board ship, and, if found healthy, allowed to proceed to destination.
From 1891 to 1908, inclusive—15 days in quarantine.
From 1909—30 days from date of clearance of ship.

The probation for cattle coming from continental Europe has remained what it was in 1881, viz.: 90 days from clearance of ship.

CONTAGIOUS DISEASES.

Foot-and-mouth disease was introduced twice in 1884. 1. By SS. *Mississippi* which landed 193 cattle on the 4th of May. 2. By SS. *Oxenholme* carrying 106 cattle landed on 4th June.

In the case of the *Mississippi* 15 head were found suffering from the disease on arrival of the ship; 57 new cases broke out while in quarantine.

In the case of the *Oxenholme* 15 animals showed marks indicating that they had had the disease lately, 11 were actually suffering from it and 7 cases occurred while in quarantine.

Though there were at that time over 800 cattle in quarantine the disease was confined to the affected herds.

Contagious pleuro-pneumonia was imported in 1886 by two steamers: the *Hibernian* and the *Alcides*. The *Hibernian* arrived in port on 24th June with two lots of cattle—the one comprising 55 head, the other 29 head.

On 5th of August, (43 days after arrival, 53 days after date of sailing), symptoms of the disease were shown by an animal in the first lot. On August 24 the other lot was found to be suffering from the disease. All of the 84 head were slaughtered and only seven were found to be free from any trace of the disease.

On June 12 the *Alcides* landed 19 cattle. All the animals seemed to do well, with the exception of one cow which was suspected of being suffering from chronic tuberculosis, and which was isolated from the rest of the herd. On the 17th September the whole herd condemned as being suffering from contagious Pleuro pneumonia. On the 16th November it was slaughtered; every animal proved to be affected with the plague.

In the following pages will be found:—

1. List of animals arrived each year.

2. Statement showing the number of animals of each breed of cattle imported each year during the whole period.

3. Statement showing the number of animals of each breed of sheep imported each year during the whole period.

4. Statement showing the number of animals of each breed of swine imported each year during the whole period.

5. Comparative number of cattle of each breed imported during the whole period.

6. Comparative number of sheep of each breed imported during the whole period.

7. Comparative number of swine of each breed imported during the whole period.

8. Statement showing for the whole period, total number of cattle, sheep, swine and goats imported each year.

9. Distribution by provinces of all of the animals imported during the whole period.

Respectfully submitted,

J. A. COUTURE.

Dr. J. G. RUTHERFORD, C.M.G.,
Veterinary Director General.

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive.

IMPORTED IN 1876.

Cattle—			
Ayrshires			
Shorthorns	94		
Herefords	3		
Devons	2		
Polled Angus	3	Total	109
Sheep—			
Breed unknown	272		
Cotswolds	10		
Southdowns	3		
Shropshires	1		
Leicesters	8		
Long Wooled	6		
Oxfords	4	Total	304
Swine—			
Breed unknown	14		
Windsors	3	Total	17
Grand total			430

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	6	2	.....
Ontario	95	252	12
United States	8	50	5
	109	304	17

1877.

Cattle—Importation prohibited.

Sheep—			
Lincolns	5		
Leicesters	9		
Cotswolds	29		
Shropshires	32		
Southdowns	49	Total	124
Swine—			
Suffolks	3		
Berkshires	35	Total	38
Grand total			162

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	.....	65	8
Ontario	.....	55	30
United States	.....	4	.....
	.....	124	38

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1878.

Cattle—			
Ayrshires	1		
Devons	3		
Jerseys	6		
Polled Angus	6		
Shorthorns	7		
Guernseys	22	Total	45
Sheep—			
Southdowns	1		
Lincolns	2		
Leicesters	12		
Shropshires	29		
Cotswolds	69	Total	113
Swine—			
Essex	4		
Berkshires	13	Total	17
Grand total			175

DESTINATION.

	Cattle.	Sheep.	Swine.
For Quebec	33	29	1
Ontario	6	83	14
United States	6	1	2
	45	113	17

1879.

Cattle—			
Polled Angus	4		
Jerseys	5		
Shorthorns	28		
Herefords	77	Total	114
Sheep—			
Hampshires	1		
Leicesters	2		
Oxfords	4		
Cotswolds	163		
Shropshires	199	Total	369
Swine—			
Berkshires	6	Total	6
Grand total			489

DESTINATION.

	Cattle.	Sheep.	Swine.
For Quebec		1	
Ontario	73	228	6
United States	41	140	
	114	369	6

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1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1880.

Cattle—			
Galloways	5		
Jerseys	7		
Shorthorns	8		
Polled Angus	15		
Ayrshires	11		
West Highland	18		
Herefords	314	Total	378
Sheep—			
Roscommons	1		
Hampshires	4		
West Highlands	12		
Southdowns	13		
Oxfords	19		
Shropshires	262		
Cotswolds	301	Total	612
Swine—			
Suffolks	4		
Berkshires	6	Total	10
Grand total			1,000

DESTINATION.

	Cattle.	Sheep.	Swine.
For Quebec	138	20	.....
Ontario	11	444	10
United States	229	148	.....
	378	612	10

1881.

Cattle—			
Guernseys	3		
Galloways	7		
Red Polled	8		
Ayrshires	12		
Jerseys	20		
Holsteins	62		
Shorthorns	133		
Polled Angus	178		
Herefords	288	Total	711
Sheep—			
Hampshires	1		
Lincolns	1		
Leicesters	17		
Southdowns	35		
Oxfords	135		
Sundries	156		
Cotswolds	367		
Shropshires	430	Total	1,142
Swine—			
Suffolks	4		
Yorkshires	11		
Berkshires	22	Total	37
Grand total			1,890

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	290	129	3
Ontario	107	745	16
New Brunswick	37	100	18
Alberta	50	.....	.....
United States	227	168	.....
	711	1,142	37

1882.

Cattle—			
Shetlands	5		
Devons	7		
Sussex	10		
Jerseys	16		
Ayrshires	17		
West Highlands	19		
Holsteins	50		
Shorthorns	105		
Herefords	173		
Galloways	223		
Polled Angus	587	Total	1,212
Sheep—			
Hampshires	10		
Leicesters	10		
West Highlands	32		
Southdowns	33		
Cotswolds	74		
Lincolns	91		
Cheviots	111		
Oxfords	208		
Shropshires	554	Total	1,123
Swine—			
Suffolks	2		
Berkshires	19	Total	21
Grand total			2,356

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	244	117	3
Ontario	288	816	18
Manitoba	12	.....	.....
Alberta	23	.....	.....
Nova Scotia	4	3	.....
United States	641	187	.....
	1,212	1,123	21

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1883.

Cattle—			
West Highlands	2		
South Devons	3		
Guernseys	3		
Sussex	11		
Ayrshires	12		
Jerseys	22		
Shorthorns	119		
Holsteins	166		
Galloways	208		
Polled Angus	621		
Herefords	963	Total	2,130
Sheep—			
Oxfords	5		
Leicesters	8		
West Highlands	12		
Cotswolds	40		
Hampshires	45		
Southdowns	74		
Shropshires	439	Total	623
Swine—			
Suffolks	11		
Berkshires	30	Total	41
Grand total			2,794

DESTINATION.

	Cattle.	Sheep.	Swine.
For Quebec	247	.....	.....
Ontario	475	457	41
New Brunswick	.....	7	.....
Nova Scotia	1	.....	.....
United States	1,407	159	.....
	2,130	623	41

1884.

Cattle—			
Devons	2		
Guernseys	4		
Ayrshires	7		
Jerseys	16		
West Highlands	17		
Sussex	21		
Polled Angus	47		
Galloways	63		
Shorthorns	124		
Holsteins	377		
Herefords	929	Total	1,807
Sheep—			
Leicesters	7		
Hampshires	7		
Oxfords	7		
Cheviots	7		
Lincolns	12		
Cotswolds	19		
West Highlands	37		
Southdowns	65		
Shropshires	312	Total	473

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

Swine—			
Suffolks	2		
Yorkshires	8		
Berkshires	16	Total	26
Grand total			2,106

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	72	.....	.....
Ontario	320	275	20
Manitoba	7	.....	.....
Alberta	.....	32	.....
Prince Edward Island	.....	2	.....
United States	1,208	164	6
	1,607	473	26

1885.

Cattle—			
Ayrshires	4		
Sussex	8		
Holsteins	16		
Jerseys	24		
Polled Angus	32		
Shorthorns	155		
Galloways	169		
Herefords	887	Total	1,295
Sheep—			
Hampshires	1		
Leicesters	6		
Cotswolds	17		
Dorset Horned	29		
Southdowns	89		
Shropshires	97	Total	239
Swine—			
Suffolks	4		
Essex	5		
Berkshires	28	Total	37
Grand total			1,571

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	96	.....	.....
Ontario	171	183	32
United States	1,028	56	5
	1,295	239	37

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1886.

Cattle—			
Red Polled	2		
West Highlands	3		
Ayrshires	4		
Devons	9		
Jerseys	12		
Sussex	19		
Shorthorns	30		
Norfolks	38		
Herefords	92		
Galloways	108		
Polled Angus	280	Total	597
Sheep—			
West Highlands	2		
Leicesters	7		
Hampshires	11		
Cotswolds	14		
Southdowns	71		
Oxfords	75		
Shropshires	148	Total	328
Swine—			
Yorkshires	3		
Berkshires	5		
Suffolks	8	Total	16
Grand total			941

DESTINATION.

	Cattle.	Sheep.	Swine.
For Quebec	56		
Ontario	210	212	16
Nova Scotia	2		
Manitoba	3		
United States	326	116	
	597	328	16

1887.

Cattle—			
Polled Angus	2		
West Highlands	11		
Galloways	58		
Shorthorns	77	Total	148
Sheep—			
Hampshires	1		
Lincolns	6		
Leicesters	11		
Cotswolds	15		
Dorset Horned	33		
Southdowns	63		
Shropshires	359	Total	488
Swine—			
Suffolks	2		
Yo kshires	3		
Berkshires	5	Total	10
Grand total			646

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Ontario	122	341	10
Alberta	26	.....	.....
United States	.....	147	.....
	148	488	10

1888.

Cattle—			
West Highlands	1		
Kerrys	2		
Herefords	3		
Shorthorns	7		
Devons	11		
Polled Angus	48		
Galloways	126	Total	198
Sheep—			
Norfolks	2		
Hampshires	3		
Southdowns	53		
Cotswolds	80		
Dorset Horned	86		
Leicesters	143		
Oxfords	150		
Cheviots	214		
Shropshires	1,263	Total	1,994
Swine—			
Suffolks	2		
Berkshires	3		
Essex	5		
Yorkshires	67	Total	77
Grand total			2,269

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	2	1	.....
Ontario	37	656	9
New Brunswick	.....	77	3
Saskatchewan	99	396	65
British Columbia	.....	2	.....
United States	60	862	.....
	198	1,994	77

1889.

Cattle—			
Herefords	1		
Shorthorns	2		
Cotentines	3		
Kerrys	4		
Jerseys	6		
West Highlands	24		
Polled Angus	100	Total	140

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

Sheep—			
Fat-Tailed	2		
West Highlands	5		
Southdow s	8		
Dorset Horned	11		
Hampshires	11		
Oxfords	28		
Cotswolds	44		
Shropshires	500	Total	609
Swine—			
Tamworths	5		
Yorkshires	13		
Suffolks	14		
Berkshires	38	Total	70
Grand total			819

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	18	31	.....
Ontario	4	386	67
Nova Scotia	.....	2	.....
Alberta	117	.....	.....
Manitoba	1	12	3
United States	.....	178	.....
	140	609	70

1890.

Cattle—			
Polled Angus	2	Total	2
Sheep—			
Leicesters	6		
Dorset Horned	10		
Southdowns	34		
Cotswolds	38		
Hampshires	58		
Oxfords	125		
Shropshires	1,631	Total	1,902
Swine—			
Tamworths	2		
Berkshires	16		
Yorkshires	42		
Suffolks	4	Total	64
Grand total			1,968

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	.....	168	3
Ontario	.....	732	57
United States	2	1,002	4
	2	1,902	64

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1891.

Cattle—			
Shorthorns	1		
Polled Angus	1		
Ayrshires	2		
Sussex	3		
Galloways	3		
Norfolks	4	Total	14
Sheep—			
Suffolks	5		
Leicesters	7		
Lincolns	27		
Southdowns	39		
Hampshires	59		
Cotswolds	109		
Dorset Horned	127		
Oxfords	211		
Shropshires	2,439	Total	3,023
Swine—			
Tamworths	4		
Berkshires	6	Total	10
Grand total			3,047

DESTINATION.

—	Cattle.	Sheep.	Swine.
For Quebec	.....	7	.....
Ontario	14	924	4
Manitoba	.....	1	.....
United States	.....	2,091	6
	14	3,023	10

1892.

Cattle—			
Jerseys	1	Total	1
Sheep—			
Hampshires	5		
Leicesters	6		
Suffolks	22		
Lincolns	24		
Southdowns	33		
Cheviots	84		
Cotswolds	97		
Dorsets	173		
Oxfords	387		
Shropshires	1,997	Total	2,828
Swine—			
Tamworths	8		
Yorkshires	11	Total	19
Grand total			2,848

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1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

DESTINATION.

—	Cattle.	Sheep.	Swine.
For Quebec	.....	86	11
Ontario	1	600	.....
Manitoba	.....	202	8
Saskatchewan	.....	94	.....
United States	.....	1,846	.....
	1	2,828	19

1893.

Cattle—			
Guernseys	1		
Ayrshires	11	Total	12
Sheep—			
Icelands	6		
Leicesters	12		
Suffolks	27		
Southdowns	32		
Cotswolds	79		
Hampshires	143		
Lincolns	151		
Dorsets	157		
Oxfords	215		
Shropshires	1,181	Total	2,003
Swine—			
Tamworths	2		
Yorkshires	4		
Berkshires	11	Total	17
Goats—			
Various breeds	2	Total	2
Grand total			2,034

DESTINATION.

—	Cattle.	Sheep.	Swine.	Goats.
For Quebec	1	26	3	2
Ontario	11	776	12	.....
Manitoba	.....	43	.....	.....
United States	.....	1,158	2	.....
	12	2,003	17	2

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1894.

Cattle—			
Ayrshires	17	Total	17
Sheep—			
Suffolks	3		
South-downs	9		
Dorsets	11		
Hampshires	12		
Lincolns	12		
Leicesters	8		
Cotswolds	26		
Shropshires	68		
Oxfords	70	Total	219
Swine—			
Yorkshire	1		
Berkshires	21	Total	22
Grand total			258

DESTINATION.

—	Cattle.	Sheep.	Swine.
For Quebec		8	
Ontario	17	100	22
Manitoba		3	
United States		108	
	17	219	22

1895.

Cattle—			
Ayrshires	10	Total	10
Sheep—			
Cheviots	1		
Leicesters	2		
Oxfords	10		
Southdowns	11		
Cotswolds	12		
Shropshires	82		
Hampshires	232	Total	350
Grand total			360

DESTINATION.

—	Cattle.	Sheep.
For Quebec		1
Ontario	10	56
Manitoba		3
United States		290
	10	350

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1896.

Cattle—			
Jerseys	8		
Ayrshires	13	Total	21
Sheep—			
Lincoln	1		
Leicesters	2		
Hampshires	7		
Cotswolds	10		
Oxfords	11		
Shropshires	58		
Southdowns	91	Total	180
Swine—			
Berkshires	6	Total	6
Grand total			207

DESTINATION.

—	Cattle.	Sheep.	Swine.
For Quebec		69	
Ontario	21	68	6
United States		43	
	21	180	6

1897.

Cattle—			
Hereford	1	Total	1
Sheep—			
Leicesters	2		
Lincolns	4		
Cotswolds	11		
Oxfords	12		
Hampshires	29		
Dorsets	48		
Southdowns	60		
Shropshires	157	Total	323
Swine—			
Berkshires	6	Total	6
Grand total			330

DESTINATION.

—	Cattle.	Sheep.	Swine.
For Quebec		32	
Ontario	1	170	6
Manitoba		8	
United States		113	
	1	323	6

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1898.

Cattle—			
Ayrshires	6		
Herefords	6		
Guernseys	7		
Kerries	7		
Simmenthalers	18		
Shorthorns	90	Total	134
Sheep—			
Dorsets	6		
Southdowns	11		
Lincolns	9		
Hampshires	11		
Oxfords	41		
Shropshires	116		
Cotswolds	124	Total	318
Swine—			
Berkshires	3		
Tamworths	16		
Yorkshires	33	Total	52
Goats—			
Toggenburg	1	Total	1
Grand total			505

DESTINATION.

	Cattle.	Sheep.	Swine.	Goats.
For Quebec	30	13	2	.....
Ontario	86	275	50	1
United States	18	30	.....	.....
	134	318	52	1

1899.

Cattle—			
Shorthorns	206		
Simmenthalers	27		
Ayrshires	13		
Galloways	8		
Herefords	3	Total	257
Sheep—			
Dorsets	4		
Leicesters	15		
Southdowns	17		
Oxfords	23		
Cotswolds	50		
Hampshires	57		
Lincolns	108		
Rambouillet	115		
Shropshires	429	Total	818
Swine—			
Yorkshires	9	Total	9
Grand total			1,084

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	16	20	.....
Ontario	214	705	9
United States	27	93	.....
	257	818	9

1900.

Cattle—			
Galloways	1		
Herefords	1		
Kerries	2		
Simmenthalers	12		
Cotentines	14		
Ayrshires	19		
Shorthorns	473	Total	522
Sheep—			
Dorsets	20		
Cotswolds	41		
Southdowns	45		
Oxfords	65		
Lincolns	77		
Hampshires	80		
Shropshires	337		
Rambouillet	358	Total	1,023
Swine—			
Yorkshires	15	Total	15
Grand total			1,560

DESTINATION.

——	Cattle.	Sheep.	Swine.
For Quebec	21	15	.....
Ontario	406	803	13
United States	95	205	2
	522	1,023	15

1901.

Cattle—			
Herefords	1		
Devons	6		
Guernseys	10		
Ayrshires	13		
Simmenthalers	18		
Galloways	21		
Polled Angus	50		
Shorthorns	289	Total	408

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

Sheep—			
Dorsets	20		
Southdowns	22		
Hampshires	37		
Oxfords	49		
Cotswolds	88		
Lincolns	102		
Shropshires	245		
Rambouillets	466	Total	1,029
Swine—			
Tamworths	3		
Large Blacks	4		
Berkshires	7		
Yorkshires	49	Total	63
Grand total			1,500

DESTINATION.

	Cattle.	Sheep.	Swine.
For Quebec	35	6	1
Ontario	247	432	57
United States	126	591	5
	408	1,029	63

1902.

Cattle—			
Herefords	6		
Polled Angus	5		
Galloways	47		
Shorthorns	448	Total	516
Sheep—			
Cotswolds	1		
Lincolns	1		
Dorsets	2		
Suff lks	2		
Leicesters	9		
Oxfords	17		
Southdowns	18		
Hampshires	18		
Shropshires	88		
Rambouill ts	211	Total	367
Swine—			
Yorkshires	115		
Berkshires	4	Total	119
Goats—			
Maltese	3		
Alpines	10	Total	13
Grand total			1,015

SESSIONAL PAPER No. 15c

1.—LIST of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

DESTINATION.

	Cattle.	Sheep.	Swine.	Goats.
For Quebec	13	2	3	13
Ontario	431	69	116	.....
Manitoba	16	.....	.....	.....
Prince Edward Island	5	.....	.....	.....
New Brunswick	.....	8	.....	.....
United States	51	288	.....	.....
	16	367	119	13

1903.

Cattle—			
West Highlands	10		
Holstein	15		
Ayrshires	36		
Galloways	80		
Shorthorns	99	Total	240
Sheep—			
Dorsets	1		
Lincolns	8		
South-downs	19		
Hampshires	26		
Leicesters	27		
Oxfords	31		
Rambouillets	47		
Shropshires	68	Total	227
Swine—			
Poland-Chinas	2		
Tamworths	3		
Berkshires	7		
Yorkshires	97	Total	109
Goats—			
Various breeds	93	Total	93
Grand total			669

DESTINATION.

	Cattle.	Sheep.	Swine.	Goats.
For Quebec	17	1	13	93
Ontario	116	117	90	.....
Alberta	7	.....	.....	.....
Manitoba	4	.....	6	.....
United States	96	109	.....	.....
	240	227	109	93

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1904.

Cattle—			
Kerries	1		
West Highlands			
Herefords	2		
Galloways	6		
Brown Swiss	8		
Polled Angus	9		
Simmenthalers	18		
Ayrshires	25		
Shorthorns	29		
Holsteins	41	Total	140
Sheep—			
Leicesters	1		
Romney Marsh	5		
Lincolns	14		
Dorsets	32		
Southdowns	34		
Cotswolds	6		
Oxfords	79		
Hampshires	98		
Shropshires	141	Total	470
Swine—			
Berkshires	44		
Yorkshires	97	Total	141
Goats—			
Several breeds	57	Total	57
Grand total			708

DESTINATION.

	Cattle.	Sheep.	Swine.	Goats.
For Quebec	20			31
Ontario	52	270	141	
United States	68	200		26
	140	470	141	57

1905.

Cattle—			
Jerseys	3		
West Highlands	3		
Ayrshires	16		
Shorthorns	26	Total	48
Sheep—			
Leicester	5		
Southdowns	17		
Oxfords	22		
Cotswolds	2		
Dorsets	23		
Hampshires	63		
Cheviots	70		
Shropshires	120	Total	342
Swine—			
Yorkshires	21		
Berkshires	53	Total	74
Goats—			
Various breeds	17	Total	17
Grand total			481

SESSIONAL PAPER No. 15c

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

DESTINATION.

——	Cattle.	Sheep.	Swine.	Goats.
For Quebec	19	.....	.....	17
Ont rio	29	194	74	.....
Saskatchewan	.....	70	.....	.....
United States	.....	78	.....	.....
	48	342	74	17

1906.

Cattle—			
Grade	1		
Galloways	9		
Shorthorns	49		
Ayrshires	107	Total	166
Sheep—			
Wensleydales	4		
Romney Marsh	4		
Suffolks	6		
West Highlands	6		
Leicesters	8		
Lincolns	16		
Cheviots	17		
Oxfords	45		
Dorsets	46		
Cotswolds	77		
Southdowns	81		
Hampshires	204		
Shropshires	68	Total	582
Swine—			
Berkshires	19		
Yorkshires	33	Total	52
Grand total			800

DESTINATION

——	Cattle.	Sheep.	Swine.
For Quebec	61	.....	.....
Ontario	90	217	46
Manitoba	3	.....	5
Alberta	.....	6	.....
Saskatchewan	3	.....	.....
United States	9	359	1
	166	582	52

1.—LIST of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

1907.

Cattle—			
Galloways	13		
Jerseys	28		
Shorthorns	48		
Ayrshires	153	Total	242
Sheep—			
Kerry Hill	4		
Cheviots	4		
West Highlands	8		
Rylands	7		
Leicesters	14		
Lincolns	15		
Suffolks	39		
Southdowns	47		
Dorsets	79		
Oxfords	108		
Cotswolds	128		
Hampshires	509		
Shropshires	1641	Total	2,603
Swine—			
Large Blacks	5		
Tamworths	7		
Yorkshires	9		
Berkshires	54	Total	75
Grand total			2,920

DESTINATION.

	Cattle.	Sheep.	Swine.
For Quebec	117	.....	15
Ontario	110	1,073	56
Nova Scotia	2	8	.....
Alberta	.....	22	.....
United States	13	1,500	4
	242	2,603	75

1908.

Cattle—			
Polled Angus	12		
Jerseys	26		
Dexter Kerries	28		
Shorthorns	37		
Ayrshires	52	Total	155
Sheep—			
Suffolks	2		
Shetland	2		
St. Kildas	4		
Cheviots	5		
Kerry Hills	7		
Leicesters	8		
Lincolns	8		
Southdowns	31		
Dorsets	46		
Lonks	55		
Cotswolds	56		
Oxfords	89		
Hampshires	185		
Shropshires	1,237	Total	1,735
Swine—			
Yorkshires	3		
Berkshires	5	Total	8
Grand total			1,898

SESSIONAL PAPER No. 15c

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Continued.*

DESTINATION.

	Cattle.	Sheep.	Swine.
For Quebec	20	2	.....
Ontario	106	445	8
Alberta	1	1	.....
Manitoba	1	.....	.....
Nova Scotia	1	.....	.....
United States	26	1,287	.....
	155	1,735	8

1909.

Cattle—			
Musk Ox	1		
Her fords	2		
Shorthorns	10		
Guernseys	51		
Ayrshires	62		
Jerseys	92	Total	218
Sheep—			
Kerry Hill	2		
Romney Marsh	3		
Suffolks	4		
Cheviots	4		
Leicesters	24		
Dartmoors	55		
Southdowns	64		
Dorsets	146		
Lincolns	154		
Oxfords	199		
Cotswolds	202		
Shropshires	923		
Hampshires	1,552	Total	3,332
Swine—			
Berkshires	1		
Tamworths	2		
Yorkshires	3		
Curly Coated Lincolns	5	Total	11
Grand total			3,561

DESTINATION.

	Cattle.	Sheep	Swine.
For Quebec	57	36	5
Ontario	28	287	.....
Alberta	.....	2	.....
United States	133	3,007	6
	218	3,332	11

1.—List of animals imported each year through the Levis Animals' Quarantine from 1876 to 1910, inclusive—*Concluded.*

1910.

Cattle—			
Ayrshires	105		
Polled Angus	95		
Shorthorns	18	Total	218
Sheep—			
Hampshires	2,549		
Oxfords	360		
Shropshires	341		
Dorsets	291		
Cotswolds	77		
Southdowns	63		
Shetlands	21		
Suffolks	16		
Lincolns	15		
Leicesters	4		
Exmoors	4		
Cheviots	3	Total	3,744
Swine—			
Berkshires	12		
Yorkshires	3	Total	15
Goats—			
Toggenburgs	2	Total	2
Grand total			3,979

DESTINATION.

——	Cattle.	Sheep.	Swine.	Goats.
For Quebec	56	3	2	2
Ontario	120	412	1	.....
Nova Scotia	11	.....	.....	.....
New Brunswick	16	.....	.....	.....
Manitoba	13	.....	.....	.....
United States	2	3,329	12	.....
	218	3,744	15	

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive.

CATTLE.

AYRSHIRES

	Head.
Imported in 1876	7
" 1878	1
" 1880	11
" 1881	12
" 18 2	17
" 1883	12
" 1884	7
" 1885	4
" 1886	4
" 1891	2
" 1893	11
" 1894	17
" 1895	10
" 1896	13
" 1898	6
" 1899	13
" 1900	19
" 1901	13
" 1903	36
" 1904	25
" 1905	16
" 1906	107
" 1907	153
" 1908	52
" 1909	62
" 1910	105
Total	735

BROWN SWISS.

Imported in 1904	8
Total	8

CONTENT NES.

Imported in 1889	3
" 1900	14
Total	17

D VONS.

Imported in 1876	2
" 1878	3
" 1882	7
" 1883	3
" 1884	2
" 1886	9
" 1888	11
" 1901	6
Total	43

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

CATTLE—*Continued.*

GRADE (Nurse).

	Head.
Imported in 1906	1

GUERNSEYS.

Imported in 1878	22
" 1881	3
" 1883	3
" 1884	4
" 1893	1
" 1898	7
" 1901	10
" 1909	51
Total	101

GALLOWAYS.

Imported in 1880	5
" 1881	7
" 1882	223
" 1883	208
" 1884	63
" 1885	169
" 1886	108
" 1887	58
" 1888	126
" 1891	3
" 1899	8
" 1900	1
" 1901	21
" 1902	47
" 1903	80
" 1904	6
" 1906	9
" 1907	13
Total	1,155

HOLSTEINS.

Imported in 1881	62
" 1882	50
" 1883	166
" 1884	377
" 1885	16
" 1903	15
" 1904	41
Total	727

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

CATTLE—*Continued.*

HEREFORDS.

	Head.
Imported in 1876	3
" 1879	77
" 1880	314
" 1881	288
" 1882	173
" 1883	963
" 1884	929
" 1885	887
" 1886	92
" 1888	3
" 1889	1
" 189	1
" 1898	6
" 1899	3
" 1900	1
" 1901	1
" 1902	6
" 1904	2
" 1909	2
Total	3,752

AYRSEYS.

Imported in 1878	6
" 1879	5
" 1880	7
" 1881	20
" 1882	16
" 1883	22
" 1884	16
" 1885	24
" 1886	12
" 1889	6
" 1892	1
" 1896	8
" 1905	3
" 1 07	28
" 1908	26
" 1909	92
Total	292

KERRIES. (Dexter-Kerries).

Imported in 1888	2
" 1889	4
" 1898	7
" 1900	2
" 1904	1
" 1908	28
Total	44

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

CATTLE—*Continued.*

NORFOLKS.

	Head.
Imported in 1886	38
" 1891	4
Total	42

MUSK OX.

Imported in 1909	1

POLLED-ANGUS.

Imported in 1876	3
" 1878	6
" 1879	4
" 1880	15
" 1881	178
" 1882	587
" 1883	621
" 1884	47
" 1885	32
" 1886	280
" 1887	2
" 1888	48
" 1889	100
" 1890	2
" 1891	1
" 1901	50
" 1902	15
" 1904	9
" 1908	12
" 1910	95
Total	2,107

RED-POLLED.

Imported in 1881	8
" 1886	2
Total	10

SHORTHORNS.

Imported in 1876	94
" 1878	7
" 1879	28
" 1880	8
" 1881	133
" 1882	105
" 1883	119
" 1884	124
" 1885	155
" 1886	30
" 1887	77
" 1888	7

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

CATTLE—*Continued.*

SHORTHORNS—*Continued.*

	Head.
Imported in 1889	2
" 1891	1
" 1898	90
" 1899	206
" 1900	473
" 1901	289
" 1902	448
" 1903	99
" 1904	29
" 1905	26
" 1906	49
" 1907	48
" 1908	37
" 1909	10
" 1910	18
Total	2,712

SUSSEX.

Imported in 1882	10
" 1883	11
" 1884	21
" 1885	8
" 1886	19
" 1891	3
Total	72

SIMMENTHALER.

Imported in 1898	18
" 1899	27
" 1900	12
" 1901	18
" 1904	18
Total	93

SHETLANDS.

Imported in 1882	5

WEST HIGHLAND. (Kyle.)

Imported in 1880	18
" 1882	19
" 1883	2
" 1884	17
" 1886	3
" 1887	11
" 1888	1
" 1889	24
" 1903	10
" 1904	1
" 1905	3
Total	109

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SHEEP.

CHEVIOTS.

	Head.
Imported in 1882	111
" 1884	7
" 1888	214
" 1892	84
" 1895	1
" 1905	70
" 1906	17
" 1907	4
" 1908	5
" 1909	4
" 1910	3
Total	520

COTSWOLDS.

Imported in 1876	10
" 1877	29
" 1878	69
" 1879	163
" 1880	301
" 1881	367
" 1882	74
" 1883	40
" 1884	19
" 1885	17
" 1886	14
" 1887	15
" 1888	80
" 1889	44
" 1890	38
" 1891	109
" 1892	97
" 1893	79
" 1894	26
" 1895	12
" 1896	10
" 1897	11
" 1898	124
" 1899	50
" 1900	41
" 1901	88
" 1902	1
" 1904	63
" 1905	22
" 1906	77
" 1907	128
" 1908	56
" 1909	202
" 1910	77
Total	2,553

DORSET-HORNED.

Imported in 1885	29
" 1887	33
" 1888	86
" 1889	11

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SHEEP—*Continued.*

DORSET-HORNED—*Continued..*

	Head.
Imported in 1890	10
" 1891	127
" 1892	173
" 1893	157
" 1894	11
" 1897	48
" 1898	6
" 1899	4
" 1900	20
" 1901	20
" 1902	2
" 1903	1
" 1904	32
" 1905	23
" 1906	46
" 1907	79
" 1908	46
" 1909	146
" 1910	291
Total	1,401

DARTMOORS.

Imported in 1909	55

EXMOORS.

Imported in 1910	4

FAT-TAILED.

Imported in 1889	2

HAMPSHIRES.

Imported in 1879	1
" 1880	4
" 1881	1
" 1882	10
" 1883	45
" 1884	7
" 1885	1
" 1886	11
" 1887	1
" 1888	3
" 1889	11
" 1890	58
" 1891	59
" 1892	5
" 1893	143
" 1894	12
" 1895	232
" 1896	7

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SHEEP—*Continued.*

HAMPSHIRES—*Continued.*

	Head.
Imported in 1897	29
" 1898	11
" 1899	57
" 1900	80
" 1901	37
" 1902	18
" 1903	26
" 1904	98
" 1905	63
" 1906	204
" 1907	509
" 1908	185
" 1909	1,552
" 1910	2,549
Total	6,629

ICELANDS.

Imported in 1893	6

KERRY-HILLS.

Imported in 1907	4
" 1908	7
" 1909	2
Totals	13

LONKS.

Imported in 1908	55

LINCOLNS.

Imported in 1877	5
" 1878	2
" 1881	1
" 1882	91
" 1884	12
" 1887	16
" 1891	27
" 1892	24
" 1893	151
" 1894	12
" 1896	1
" 1897	4
" 1898	9
" 1899	108
" 1900	77
" 1901	102
" 1902	1
" 1903	8
" 1904	14
" 1906	16

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SHEEP—*Continued.*

LINCOLNS—*Continued.*

	Head.
Imported in 1907	15
" 1908	8
" 1909	154
" 1910	10
Total	868

LEICESTERS.

Imported in 1876	8
" 1877	9
" 1878	12
" 1879	2
" 1881	17
" 1882	10
" 1883	8
" 1884	7
" 1885	6
" 1886	7
" 1887	11
" 1888	143
" 1890	6
" 1891	7
" 1892	6
" 1893	12
" 1894	8
" 1895	2
" 1896	2
" 1897	2
" 1899	15
" 1902	9
" 1903	27
" 1904	4
" 1905	5
" 1906	8
" 1907	14
" 1908	8
" 1909	24
" 1910	4
Total	403

NORFOLKS.

Imported in 1888	2

OXFORDS.

Imported in 1876	4
" 1879	4
" 1880	19
" 1881	135
" 1882	208
" 1883	5
" 1884	7
" 1886	75
" 1888	150

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SHEEP—*Continued:*

OXFORDS—*Continued.*

Imported in 1889	28
" 1890	125
" 1891	211
" 1892	387
" 1893	215
" 1894	70
" 1895	10
" 1896	11
" 1897	12
" 1898	41
" 1899	23
" 1900	65
" 1901	41
" 1902	17
" 1903	31
" 1904	79
" 1905	22
" 1906	45
" 1907	108
" 1908	89
" 1909	199
" 1910	360
Total	2,796

ROMNEY-MARSH.

Imported in 1904	5
" 1906	4
" 1909	3
Total	12

ROSCOMMONS.

Imported in 1880	1

RYLANDS.

Imported in 1907	7

RAMBOUILLETS.

Imported in 1899	115
1900	358
1901	466
1902	211
1903	47
Total	1,197

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SHEEP—*Continued.*

SUFFOLKS.

Imported in 1891	5
1892	22
1893	27
1894	3
1902	2
1906	6
1907	39
1908	2
1909	4
1910	16
Total	126

SOUTH-DOWNS.

Imported in 1876	3
1877	49
1878	1
1880	13
1881	35
1882	33
1883	74
1884	65
1885	89
1886	71
1887	63
1888	53
1889	8
1890	34
1891	39
1892	33
1893	32
1894	9
1895	11
1896	91
1897	60
1898	11
1899	17
1900	45
1901	22
1902	18
1903	19
1904	34
1905	17
1906	81
1907	47
1908	31
1909	64
1910	63
Total	1,335

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SHEEP—*Continued.*

SHROPSHIRES.

Imported in 1876	1
" 1877	32
" 1878	29
" 1879	199
" 1880	262
" 1881	432
" 1882	554
" 1883	439
" 1884	312
" 1885	97
" 1886	148
" 1887	359
" 1888	1,263
" 1889	500
" 1890	1,631
" 1891	2,439
" 1892	1,997
" 1893	1,181
" 1894	68
" 1895	82
" 1896	58
" 1897	157
" 1898	116
" 1899	429
" 1900	337
" 1901	245
" 1902	88
" 1903	68
" 1904	141
" 1905	120
" 1906	608
" 1907	1,641
" 1908	1,237
" 1909	923
" 1910	341
Total	18,534

ST. KILDAS.

Imported in 1908	4

SHETLANDS.

Imported in 1908	2
" 1910	21
Total	23

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2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SHEEP—*Continued.*

WEST HIGHLANDS.

	Head.
Imported in 1880	12
" 1882	32
" 1883	12
" 1884	37
" 1886	2
" 1889	5
" 1906	6
" 1907	8
Total	114

WENSLEYDALES.

Imported in 1906	4

BREED UNKNOWN.

Imported in 1876	278
" 1881	156
Total	434

SWINE.

BERKSHIRES.

Imported in 1877	35
" 1878	13
" 1879	6
" 1880	22
" 1881	22
" 1882	19
" 1883	30
" 1884	16
" 1885	28
" 1886	5
" 1887	5
" 1888	3
" 1889	38
" 1890	16
" 1891	6
" 1893	11
" 1894	21
" 1896	6
" 1897	6
" 1898	3
" 1901	7
" 1902	4
" 1903	7
" 1904	44
" 1905	53
" 1906	19
" 1907	54
" 1908	5
" 1909	1
" 1910	12
Total	517

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SWINE—*Continued.*

ESSEX.

	Head.
Imported in 1878	4
" 1885	5
" 1888	5
Total	14

LARGE BLACKS.

Imported in 1901	4
" 1907	5
Total	9

LINCOLNS (Curly-Coated).

Imported in 1909	5

POLAND-CHINA.

Imported in 1903	5

SUFFOLKS.

Imported in 1887	3
" 1880	4
" 1881	4
" 1882	2
" 1883	11
" 1884	2
" 1885	4
" 1886	8
" 1887	2
" 1888	2
" 1889	14
" 1890	4
Total	60

TAMWORTHS.

Imported in 1889	5
" 1890	2
" 1891	4
" 1892	8
" 1893	2
" 1898	16
" 1901	3
" 1903	3
" 1907	7
" 1909	2
Total	52

2.—STATEMENT showing the number of animals of each breed of cattle, sheep, swine and goats imported, through the Lévis Animals' Quarantine, from 1876 to 1910, inclusive—*Continued.*

SWINE—*Continued.*

YORKSHIRES.

Imported in 1881	11
" 1884	8
" 1886	3
" 1887	3
" 1888	67
" 1889	13
" 1890	42
" 1892	11
" 1893	4
" 1894	1
" 1898	33
" 1899	9
" 1900	15
" 1901	49
" 1902	115
" 1903	97
" 1904	97
" 1905	21
" 1906	33
" 1907	9
" 1908	3
" 1909	3
" 1910	3
Total	650

WINDSORS.

Imported in 1876	3

BREED UNKNOWN.

Imported in 1876	14

COMPARATIVE total number of animals of each breed of cattle, sheep and swine imported, through the Levis Animals' Quarantine, from 1876 to 1910, inclusive.

CATTLE.

	Head.
1 Herefords	3752
2 Shorthorns	2712
3 Polled Angus	2107
4 Galloways	1155
5 Ayrshires	735
6 Holsteins	727
7 Jerseys	292
8 West Highlands	109
9 Guernseys	101
10 Simmenthalers	93
11 Sussex	72
12 Kerries (Dexter)	4
13 Devons	43
14 Norfolks	42
15 Cotentines	17
16 Red Polled	10
17 Brown Swiss	8
18 Shetlands	5
19 Grade	1
20 Musk Ox	1
Total	12,026

SHEEP.

1 Shropshires	18,534
2 Hampshires	6,029
3 Oxfords	2,796
4 Cotswolds	2,553
5 Dorset-Horned	1,401
6 Southdowns	1,335
7 Rambouillets	1,197
8 Lincolns	863
9 Cheviots	520
10 Breed unknown	434
11 Leicesters	403
12 West Highlands	114
13 Dartmoors	55
14 Lonks	55
15 Shetlands	23
16 Kerry- Hills	13
17 Romney Marsh	12
18 Rylands	7
19 Icelands	6
20 Exmoors	4
21 Wenslydales	4
22 St. Kildas	4
23 Fat Tails	2
24 Norfolks	2
25 Roscommons	1
Total	36,367

SWINE.

1 Yorkshires	650
2 Berkshires	501
3 Suffolks	60
4 Tamworths	52
5 Breed unknown	14
6 Essex	14
7 Large Blacks	9
8 Lincolns (Curly Coated)	5
9 Windsors	3
10 Poland-Chinas	2
Total	1,310

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TOTAL NUMBER of cattle, sheep, swine and goats imported each year, through the Levis Animals' Quarantine, from 1876 to 1910, inclusive.

Year.	Cattle.	Sheep.	Swine.	Goats.	Total.
1876	109	304	17	.....	430
7	.....	124	38	.....	162
8	45	113	17	.....	175
9	114	369	6	.....	489
1880	378	612	10	.....	1,000
1	711	1,142	37	.....	1,890
2	1,212	1,123	21	.....	2,356
3	2,130	623	41	.....	2,794
4	1,607	473	26	.....	2,106
5	1,295	239	37	.....	1,571
6	597	328	16	.....	941
7	148	488	10	.....	646
8	198	1,994	77	.....	2,269
9	140	609	70	.....	819
1890	2	1,902	64	.....	1,968
1	14	3,023	10	.....	3,047
2	1	2,828	19	.....	2,848
3	12	2,003	17	2	2,034
4	17	219	22	.....	258
5	10	350	.....	.....	360
6	21	180	6	.....	207
7	1	323	6	.....	330
8	134	318	52	1	505
9	257	818	9	.....	1,084
1900	522	1,023	15	.....	1,560
1	408	1,029	63	.....	1,500
2	516	367	119	13	1,015
3	240	227	109	93	669
4	140	478	141	57	816
5	48	342	74	17	481
6	166	1,122	52	.....	1,340
7	242	2,603	75	.....	2,920
8	155	1,735	8	.....	1,898
9	218	3,332	11	.....	3,561
1910	218	3,744	15	2	3,979
Total	12,026	36,507	1,310	185	50,028

DESTINATION of the animals imported through the Levis Animals' Quarantine, from 1876 to 1910, inclusive.

Province.	Cattle.	Sheep.	Swine.	Goats.	Total.
Prince Edward Island	5	2	.....	.....	7
Nova Scotia	21	13	.....	.....	34
New Brunswick	53	192	21	.....	266
Quebec	1,685	890	76	158	2,809
Ontario	4,029	14,044	1,069	1	19,143
Manitoba	60	272	22	.....	354
Saskatchewan	102	560	65	.....	727
Alberta	224	63	.....	.....	287
British Columbia	.....	2	.....	.....	2
Total for Canada	6,179	16,038	1,253	159	23,629
Total for United States	5,847	20,469	57	26	26,399
Grand Total	12,026	36,507	1,310	185	50,028

J. A. COUTURE, D.V.S.

QUEBEC, March 31, 1911.

SIR,—I have the honour to send you my report on the operations of the Pointe Lévis Animals' Quarantine for the twelve months ending March 31, 1911.

Four thousand and five animals have been imported from Europe, through this Station, during the above mentioned period, viz.:—

Cattle	218
Sheep	3744
Swine	15
Goats	2
Horses	26
Total	4,005

As regards breeds the animals are classified as follows:—

Breed.	Name and residence of owner.	No. of animals.	Total.
Cattle—			
Ayrshire	Thomson, Alex. Fredericton, N.B.	9	
	Hunter, Robt. & Son, Maxville, Ont.	26	
	McGregor, J. D., Brandon, Man.	1	
	Herhart, Mrs. F. D., West Berlin, Vt.	2	
	Ness, R. R., Howick, Que.	56	
	Blanchard, C. P., Truro, N.S.	11	105
Polled Angus	McGregor, J. D., Brandon, Man.	10	
	Larkin, John D., Queenston, Ont.	85	95
Shorthorns	Van Horne, Sir Wm., East Selkirk, Man.	2	
	Watt, J. A., Salem, Ont.	4	
	Thomson, Alex., Fredericton, N.B.	7	
	Dryden, W. A., Brooklin, Ont.	5	18

Breed.	Name and Residence of Owner.	Number of Animals.	Total.
Sheep—			
Hampshire	Cooper & Nephews, Chicago, Ill	1,457	
	Blastock, R. S., Donerail, Ky	658	
	Renk, W. F., Sun Prairie, Wis	201	
	Leet, J. H., Mantua, O	147	
	McKerrow, Geo., Pewaukee, Wis	72	
	Butler, Wm., Shifnal, Eng	9	
	Allen, Geo., Paris, Ont	5	2,549
Oxford	Cooper & Nephews, Chicago, Ill	179	
	McKerrow, Geo., Pewaukee, Wis	123	
	Arkell, W. J., Teeswater, Ont	43	
	Butler, Wm., Shifnal, Eng	8	
	Leet, J. H., Mantua, O	5	
	Allen, Geo. Paris, Ont	2	360
Shropshire	Cooper & Nephews, Chicago, Ill	166	
	McKerrow, Geo., Pewaukee, Wis	111	
	Leet, J. H., Manuta, O	15	
	Renk, W. F., Sun Prairie, Wis	32	
	Allen, Geo., Paris, Ont	12	
	Butler, Wm., Shifnal, Eng	3	
	McFarlane, John, Clinton, Ont	2	341
Dorset-Horned	Jones, C. C., Bennington, Vt	212	
	Allen, Geo., Paris, Ont	74	
	Leet, J. H., Mantua, O	5	291
Cotswold	Cooper & Nephews, Chicago, Ill	38	
	Allen, Geo., Paris, Ont	29	
	McKerrow, Geo., Pewaukee, Wis	10	77
South-downs	Cooper & Nephews, Chicago, Ill	28	
	Leet, J. H., Mantua, O	26	
	Butler, Wm., Shifnal, Eng	5	
	Allen, Geo., Paris, Ont	3	
	Gibson, Sir Geo. Drummund's Estate, Beaconsfield, Que	1	63
Shetland	Cooper & Nephewa, Chicago, Ill	17	
	Blastock, R. S., Donerail, Ky	4	21
Suffolk	Cooper & Nephews, Chicago, Ill		16
Lincoln	Mitchell, John, Glencoe, Ont		15
Leicesters	Ness, R. R., Howick, Que	2	
	Eadie, J. D., Vars, Ont	1	
	Butler, Wm., Shifnal, Eng	1	4
Exmoor	Cooper & Nephews, Chicago, Ill		4
Cheviot	Leet, J. H., Mantua, O		3
Swine—			
Berkshire	Cooper & Nephews, Chicago, Ill		12
Yorkshire	Ness, R. R., Howick, Que	2	
	Dryden, W. A., Brooklin, Ont	1	3
Goats	Laurin, J. A., Montreal		2
Horses—			
Belgian Draught	Pootman, Eug. C., Antwerp, Belgium		19
Clydesdale	Blanchard, C. P., Truro, N.S.	2	
	Lyster, Dr. J., Richmond, Que	1	3
Thoroughbred	Hains, Ed., Owen Sound, Ont		4
	Grand Total		4,005

The four thousand and five animals imported during the past season are divided between the several importers as follows:—

Allen, Geo., Paris, Ont., 125 sheep, viz	5 Hampshires
	2 Oxfords
	12 Shropshires
	74 Dorset Horned
	29 Cotswolds
	3 South-downs
Arkell, J. W., Teeswater, Ont	43 Oxford sheep
Blastock, R. S., Donerail, Ky	658 Hampshire sheep
	4 Shetland sheep.
Butler, Wm., Shifnal, Eng., 26 sheep, viz	9 Hampshires
	8 Oxfords
	3 Shropshires
	5 South-downs
	1 Leicester
Blanchard, C. P., Truro, N.S	2 Clydesdale horses
	11 Ayrshire cattle
Cooper & Nephews, Chicago, Ill., 12 Swine and 1,905 sheep, viz:	12 Berkshire swine
	1,457 Hampshire sheep
	179 Oxford sheep
	166 Shropshire sheep
	38 Cotswold sheep
	28 Southdown sheep
	17 Shetland sheep
	16 Suffolk sheep
	4 Exmoor sheep
Dryden, W. A., Brooklin, Ont	1 Yorkshire swine
	5 Shorthorn cattle
Erhardt, Mrs. F. D., West Berlin, Vt	2 Ayrshire cattle
Eadie, J. D., Vars, Ont	1 Leicester sheep
Gibson, Wm., Beaconsfield, Que	1 South-down sheep
Hunter, Robt. & Son, Maxville, Ont	26 Ayrshire cattle
Hains, Ed., Owen Sound, Ont	4 Thoroughbred horses
Jones, C. C., Bennington, Vt	212 Dorset Horned sheep
Larkin, John D., Queenston, Ont	85 Polled Angus cattle
Leet, J. H., Mantua, O., 201 sheep, viz	147 Hampshires
	5 Oxfords
	15 Shropshires
	5 Dorset Horned
	26 South-downs
	3 Cheviots
Lyster, Dr. J., Richmond, Que	1 Clydesdale horse
Laurin, J. A., Montreal	2 Goats
Mitchell, John, Glencoe, Ont	15 Lincoln sheep
McGregor, J. D., Brandon, Man., 11 cattle, viz	1 Ayrshire cattle
	10 Polled Angus cattle
McKerrow, Geo., Pewaukee, Wis., 316 sheep, viz	72 Hampshires
	123 Oxfords
	111 Shropshires
	10 Cotswolds
McFarlane, John, Clinton, Ont	2 Shropshire sheep
Ness, R. R., Howick, Que	56 Ayrshire cattle
	2 Leicester sheep
	2 Yorkshire swine
Pootman, Eug., Antwerp	19 Belgian horses
Renk, W. F., Sun Prairie, Wis	201 Hampshire sheep
	32 Shropshire sheep
Thomson, Alex., Fredericton, N.B	9 Ayrshire cattle
	7 Shorthorn cattle
Van Horne, Sir Wm., East Selkirk, Man	2 Shorthorn cattle
Watt, J. A., Salem, Ont	4 Shorthorn cattle

DESTINATION.

Of the total number of animals imported, 462 remained in Canada and 3,543 went to the United States, as follows:—

	For Canada.		For United States.	
Cattle—				
Ayrshires	103		2	
Polled Angus	95		.....	
Shorthorns	18	216	.....	2
Sheep—				
Hampshires	14		2,535	
Oxfords	53		307	
Shropshires	17		324	
Dorset Horned	74		217	
Cotswolds	29		48	
South-downs	9		54	
Shetlands	.....		21	
Suffolks	.....		16	
Lincolns	15		.....	
Leicesters	4		.....	
Exmoors	.....		4	
Cheviots	.....	215	3	3,529
Swine—				
Berkshires	.....		12	
Yorkshires	3	3	.....	12
Goats—				
Toggenburgs	2	2		
Horses—				
Clydesdales	3			
Belgian Draught	19			
Thoroughbreds	4	26		
		462		3,543

DISTRIBUTION BY PROVINCES.

The 462 animals which remained in Canada were distributed between the several provinces as follows:—

			Total.
Nova Scotia	Cattle	11 Ayrshires	
	Horses	2 Clydesdales	13
New Brunswick	Cattle	9 Ayrshires	
		7 Shorthorns	16
Quebec	Cattle	56 Ayrshires	
	Sheep	2 Leicesters	
		1 Southdown	
	Swine	2 Yorkshires	
	Goats	2 Toggenburgs	
	Horses	1 Clydesdale	
		19 Belgian Draughts	83

Ontario..	Cattle...	26 Ayrshires	
		85 Polled Angus	
		9 Shorthorns	
	Sheep.....	14 Hampshires	
		53 Oxfords	
		17 Shropshires	
		74 Dorset Horned	
		29 Cotswolds	
		8 Southdowns	
		15 Lincolns	
		2 Leicesters	
	Swine.....	1 Yorkshire	
	Horses.....	4 Thoroughbreds.	337
Manitoba....	Cattle...	2 Shorthorns	
		1 Ayrshire	
		10 Polled Angus.....	13
Total....			462

TESTING WITH TUBERCULIN.

Of the 218 cattle which came to this Station, 197 were tested with tuberculin. There were 15 reactors and 6 doubtfuls. The reactors were marked in the ear with a T. The testing of 5 animals had to be postponed on account of too high temperature. Two cows bound for the United States had been tested in Scotland by the veterinarian representing the United States Bureau of Animal Industry. Thirteen calves under age were not tested; one cow died before being tested.

BIRTHS AND DEATHS.

Eight calves were born in quarantine. One cow died the day after she arrived from over-feeding on board ship. One calf died from indigestion. Five sheep were killed by lightning and five others died from non-contagious diseases.

Two hundred and fifty-seven cattle and 2 horses, all consigned to Great Britain, were exported through the port of Quebec.

I have the honour to be, sir,
Your obedient servant,

J. A. COUTURE,
Superintendent.

Dr. J. G. RUTHERFORD, C.M.G.,
Veterinary Director General,
Ottawa.

APPENDIX No. XV.

J. H. Frink, V.S.

St. John, N.B., March 31, 1911.

Sir,—I beg to submit my annual report covering work at this Station. The inspections of import and export live stock were conducted as usual. No disease of a contagious nature, manifested itself.

Import horses from Great Britain	406	
" " Continent of Europe	60	
" " United States	14	
Total		480
Import cattle from Great Britain	41	
" swine " "	26	
" sheep " "	10	
Total		67
Import donkey from West Indies	1	
" goats " "	2	
Total		3
Import cattle from United States	2	
" goats " "	1	
Total		3

These animals were found free from contagious disease. Horses from Great Britain, and other animals were accompanied by the required health certificate, with one exception, and this case was held until satisfactory arrangements were made with the Department. Quarantinable animals were detained the period prescribed in the regulations, and when demanded the usual mallein and tuberculin tests applied.

EXPORT LIVE STOCK.

Six head of pure-bred cattle and three head grade cattle, were tested with tuberculin prior to export to United States. One animal, a pure-bred, reacted, and was refused export. One calf exported under six months.

Total export cattle to United States, 10 heads.

EXPORT LIVE STOCK TO GREAT BRITAIN.

The number of cattle and sheep shipped to Great Britain, is the lowest, since the opening of this port, for export cattle destined for slaughter, namely, in 1895. The total export consisted of 1,928 head of cattle, 1,817 being United States cattle, and 111 Canadian cattle; and 2,508 sheep, the product of the United States; showing clearly, that the trade conditions are against Canada in this respect, and the low quotations on merchantable meat, in Great Britain, indicate that the trade cannot be profitably pursued.

Total export Great Britain:—

1,928 head cattle.
2,508 " sheep.
9 " horses.

The province of New Brunswick is particularly free from any form of contagious disease affecting animals, and I have nothing to report on this question. The last vestige of the outbreak of mange in horses which existed in Queens and Sunbury Co. two years ago, was cleared up during the year. The quarantine buildings have been well maintained, and the accommodation afforded is satisfactory to importers, with the exception of provision for sheep, which could be provided with little expense. The inspection of live stock cars has been carried on as usual, the railway and transportation companies not hesitating to meet the requirements of cleansing and disinfection.

I have the honour to be, sir,
Your obedient servant,

JAMES H. FRINK,
Inspector.

The Veterinary Director General,
Ottawa.

APPENDIX No. XVI.

H. S. McFatridge, V.S.

Halifax, March 31, 1911.

Sir,—Please find attached my annual report of animals inspected at this port of entry for the year ending March 31, 1911, all of which is respectfully submitted for your information.

LIST OF ANIMALS EXPORTED.

Destination.	Horses.	Cattle.	Sheep.	Swine.	Mules.
New York, U.S.A.	1				
Boston, Mass., U.S.A.	7		5		1
St. Johns, Nfld.		4		6	
Barbados	16	1			
Jamaica		10	90		
St. Vincent	2	1	6		
St. Lucia	1		3	6	
Demerara	1			1	
Antigua	1				
Bermuda	59	33	99		
Trinidad	8	3		8	
St. Pierre et Miquelon		5			
Cape Town, S.A.			1		
Totals	96	57	204	21	1

LIST OF ANIMALS IMPORTED.

Place imported from.	Horses.	Cattle.	Mules.
Glasgow,		1	
London,	2		
Boston, Mass,	26		1
New York,	1		
Totals	29	1	1

I have the honour to be, sir,
Your obedient servant,

H. S. McFATRIDGE, V.S.,
Inspector.

To the Veterinary Director General,
Ottawa, Ont.

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APPENDIX No. XVII.

THE ANIMAL CONTAGIOUS DISEASES ACT AND THE REGULATIONS RELATING TO ANIMALS' QUARANTINE.

CHAPTER 75.

An Act respecting Infectious or Contagious Diseases affecting Animals.

(As Amended.)

SHORT TITLE.

Short title.

1. This Act may be cited as the Animal Contagious Diseases Act. 3 E. VII., c. 11, s. 1.

INTERPRETATION.

Definitions.

2. In this Act, unless the context otherwise requires,—

(a) 'the Minister' means the Minister of Agriculture;

(b) 'foreign animals' means animals not already introduced into Canadian territory, outside of quarantine stations;

(c) 'contagious' means communicable by close contact or inoculation;

(d) 'infectious' means communicable in any manner;

(e) 'infectious or contagious disease' includes, in addition to other diseases generally so designated, glanders, farcy, *maladie du coït*, pleuro-pneumonia contagiosa, foot and mouth disease, rinderpest, anthrax, Texas fever, hog cholera, swine plague, mange, scab, rabies, tuberculosis, actinomycosis, and variola ovina. 3 E. VII., c. 11, s. 2; 4 E. VII., c. 6, s. 1.

DUTIES OF OWNERS OF ANIMALS.

Notice of disease to be given.

3. Every owner of animals and every breeder of or dealer in animals, and every one bringing animals into Canada, shall, on perceiving the appearance of infectious or contagious disease among the animals owned by him or under his special care, give immediate notice to the Minister and to the nearest veterinary inspector of the Department of Agriculture of the facts discovered by him as aforesaid.

2. Any veterinary surgeon practising in Canada shall, immediately on ascertaining that an animal is labouring under an infectious or contagious disease, give similar notice to the Minister and to the nearest veterinary inspector. 3 E. VII., c. 11, s. 3.

4.

Penalty for neglect.

4. Every owner of such diseased animals who neglects to comply with the provisions of the last preceding section shall forfeit his claim to compensation for any animals slaughtered in accordance with the provisions of this Act; and no such compensation shall be granted to him. 3 E. VII., c. 11, s. 4.

SLAUGHTERING DISEASED CATTLE.

Slaughtering diseased animals.

5. The Minister may, from time to time, cause to be slaughtered animals suffering from infectious or contagious disease or suspected of being so affected, and animals which are or have been in contact with or close proximity to a diseased animal, or an animal suspected of being affected by infectious or contagious disease. 3 E. VII., c. 11, s. 11.

Compensation to owners.

6. The Governor in Council may order a compensation to be paid to the owners of animals slaughtered under the provisions of this Act; and in all cases the value of the animal for which compensation is ordered, shall be determined by the Minister or by some person appointed by him, but, except as hereinafter provided, such value shall not exceed, in the case of grade animals, one hundred and fifty dollars for each horse, sixty dollars for each head of cattle, and fifteen dollars for each pig or sheep; and, in the case of pure bred animals, three hundred dollars for each horse, one hundred and fifty dollars for each head of cattle, and fifty dollars for each pig or sheep.

May be withheld.

2. Such compensation may be withheld in whole or in part whenever the owner or the person having charge of the animal has, in the opinion of the Minister, been guilty in relation to the animal of an offence against this Act, or whenever the animal being a foreign one was in his judgment diseased at the time of entering Canada. 3 E. VII., c. 11, s. 12.

Basis of compensation.

7. The compensation, if any, shall be two-thirds of the value of the slaughtered animal, determined as aforesaid, before it became affected with infectious or contagious disease, or came in contact with or in dangerous proximity to animals so affected. Provided that,—

(a) when it is clearly shown that an animal has been slaughtered on insufficient grounds and that the slaughter was not in accordance with or justifiable under this Act, the owner shall be entitled to compensation at the full value of the animal so slaughtered; and,

(b) if in any case, the sum received by the Government on the sale of a carcass of an animal slaughtered exceeds the amount paid for compensation to the owner of the animal, the excess after deduction of reasonable expenses shall be paid to the owner. 3 E. VII., c. 11, s. 12; 4 E. VII., c. 6, ss. 2 and 3.

Experimental treatment.

8. The Minister may, notwithstanding anything in this Act, reserve for experimental treatment any animal ordered to be

be slaughtered under this Act, and may authorize any of his officers or persons employed by him to make *post mortem* examinations of animals which have died, or are supposed to have died, from infectious or contagious disease, and to dig up carcasses of such animals for the purpose of investigation. 3 E. VII., c. 11, s. 13. ment and *post mortem* examination.

PROHIBITION OF IMPORTATION.

9. The Minister may, from time to time, prohibit the importation or the introduction into Canada, or any part thereof, or into any particular ports thereof, of animals, or of flesh, hides, hoofs, horns or other parts of animals, or of hay, straw, fodder or other articles, either generally or from any places named in the order, for such period as he deems to be necessary for the purpose of preventing the introduction of any contagious or infectious disease among animals into Canada. 3 E. VII., c. 11, s. 14. Governor in Council may prohibit importation.

OFFICERS AND THEIR DUTIES.

10. The Minister may appoint inspectors and other officers when he deems it necessary, but such appointments shall be confirmed by the Governor in Council within thirty days of the date thereof. 3 E. VII., c. 11, s. 16. Appointment of officers.

11. Inspectors or other officers appointed as aforesaid, on receiving information of the supposed existence of any infectious or contagious disease among animals, shall proceed to the place mentioned with all practicable speed, and execute and discharge their duties pursuant to the regulations made under the authority of this Act and the instructions received by them. 3 E. VII., c. 11, s. 17. Duties of officers.

12. Any inspector or other officer appointed as aforesaid may, at any time, for the purpose of carrying into effect any of the provisions of this Act, enter any place or premises, or any steamship, vessel or boat, or any carriage, car, truck, horse-box or other vehicle used for the carriage of animals, but shall, if required, state in writing the grounds on which he has so entered. 3 E. VII., c. 11, s. 36. Inspector's power of entry.

13. If any animal infected with or labouring under any infectious or contagious disease, or suspected of being so affected is sold, disposed of, or put off, or is exposed or offered for sale in any place, or is brought or attempted to be brought for the purpose of being exposed or offered for sale in any market, fair or other open or public place where other animals are commonly exposed for sale, any clerk or inspector, or other officer of the fair or market, or any constable or policeman, or any other person authorized by the mayor or reeve, or by any justice Seizure of animals.

justice of the peace having jurisdiction in the place, or any person authorized or appointed by the Minister, may seize the animal and report the seizure to the mayor or reeve, or to any justice of the peace having jurisdiction in the place; and such mayor, reeve or justice, or person authorized or appointed by the Minister, may, after veterinary examination and verification, cause the animal, together with any pens, hurdles, troughs, litter, hay, straw, or other articles which he judges likely to have been infected thereby, to be forthwith destroyed, or otherwise disposed of, in such manner as he deems proper, or as is directed, as provided by this Act. 3 E. VII., c. 11, s. 10.

Apprehension of persons.

14. Any inspector or constable may, without warrant, apprehend any person found committing an offence against the provisions of this Act with respect to infected places, and shall take any person so apprehended forthwith before a justice of the peace to be examined and dealt with according to law; and a person so apprehended shall not be detained in custody without the order of a justice longer than twenty-four hours; and any inspector or constable may require that any animal or thing moved out of an infected place in violation of the provisions of this Act be forthwith taken back within the limits of that place, and may enforce and execute such requisition at the expense of the owner of such animal or thing. 3 E. VII., c. 11, s, 43.

INFECTED PLACES.

Notice to owners.

15. Whenever an inspector finds or suspects infectious or contagious disease of animals to exist, he shall forthwith make a declaration thereof under his hand, and shall deliver a copy of such declaration to the occupier of the common, field, stable, cowshed or other premises where the disease is found; and thereupon the same, with all lands and buildings contiguous thereto in the same occupation, shall be deemed to be an infected place; and the same shall be held to be an infected place until the determination and declaration of the Minister relative thereto in this Act provided for. 3 E. VII., c. 11, s. 18.

Report to Minister.

16. Whenever an inspector makes such a declaration of the existence or suspected existence of infectious or contagious disease of animals, he shall, with all practicable speed, send a copy thereof to the Minister; and if it appears that infectious or contagious disease exists, the Minister may so determine and declare, and may prescribe the limits of the infected place; but if it appears that it did not exist, the Minister may so determine and declare, and thereupon the place comprised in the inspector's declaration, or affected thereby, shall cease to be deemed an infected place. 3 E. VII., c. 11, s. 19.

17.

Notice to occupant.

17. Whenever, under this Act, an inspector makes a declaration which constitutes a place an infected place, he may also, if the circumstances of the case appear to him so to require, deliver a notice under his hand of such declaration to the occupiers of all lands and buildings adjoining thereto, any part whereof respectively lies within one mile of the boundaries of the infected place in any direction, and thereupon the provisions of this Act with respect to infected places shall apply to and have effect in respect of such lands and buildings as if the same were actually within the limits of the infected place. 3 E. VII., c. 11, s. 20.

Area of infected locality.

18. The area of an infected place may, in all cases of a declaration by the Minister, include any common, field, stable, cowshed or other premises in which infectious or contagious disease has been found to exist, and such an area as to the Minister seems requisite; and the Minister may, from time to time, by order, extend or curtail the limits of an infected place beyond the boundaries of the common, field, stable, cowshed, farm or premises where infectious or contagious disease is declared or found to exist. 3 E. VII., c. 11, s. 21.

How area described.

19. The area of an infected place may, in any case, be described by reference to a map or plan deposited at some specified place, or by reference to townships, parishes, farms, or otherwise. 3 E. VII., c. 11, s. 22.

Declaring place free from disease.

20. The Minister may, at any time, upon the report of an inspector, by order, declare any place to be free from infectious or contagious disease; and thereupon, and from the time specified in that behalf in the order, the place shall cease to be deemed an infected place. 3 E. VII., c. 11, s. 23.

Order of Minister.

21. An order of the Minister relative to an infected place shall supersede any order of a local authority inconsistent with it. 3 E. VII., c. 11, s. 24.

Transit.

22. The provisions of this Act with respect to infected places, shall not restrict the moving of any person, animal or thing by railway or other mode of transport on highways through an infected place, if such person, animal or thing is not detained within the infected place, unless such transport is prohibited. 3 E. VII., c. 11, s. 25.

Removal from infected places.

23. Whenever under this Act a place has been constituted an infected place, no live animal, nor the flesh, head, hide, skin, hair, wool or offal of any animal or any part thereof, nor the carcass nor any remains of any animal, nor any dung of animals, nor any hay, straw, litter or other thing commonly used for and about animals, shall be removed out of the infected place.

place, without a license signed by an inspector appointed as aforesaid, until said place has been released by order of the Minister. 3 E. VII., c. 11, s. 26.

CLEANSING OF VESSELS, VEHICLES AND PREMISES.

Vessels, etc., to be cleansed.

24. Every company and every person carrying for hire animals to or in Canada, shall thoroughly cleanse and disinfect, in such manner as the Governor in Council, from time to time, directs, all steamships, steamers, vessels, boats, pens, carriages, trucks, horse-boxes and vehicles used by such company or person for the carrying of animals; and the Governor in Council may cause any such steamship, steamer, vessel, boat, carriage, truck, horse-box or vehicle, to be detained at such place as to him seems meet, until it is so cleansed and disinfected. 3 E. VII., c. 11, s. 27.

Minister may cause the work to be done.

25. If the company or person using such steamship, steamer, vessel, boat, carriage, truck, horse-box or vehicle for the carrying of animals, fails to cause the same to be so cleansed and disinfected within such time after being notified so to do as the Minister directs, the Minister may cause the same to be cleansed and disinfected at the expense of such company or person. 3 E. VII., c. 11, s. 27.

Premises to be in sanitary condition.

26. All yards, stables, sheds or other premises used by railway or steamship companies or other persons for the accommodation of animals shall be maintained in a clean, comfortable and sanitary condition, and shall be subject at all times to inspection by inspectors acting under the authority of the Minister, who, when they deem such action necessary, may order the cleansing and disinfection in a satisfactory manner of the said yards, stables, sheds or other premises. 3 E. VII., c. 11, s. 28.

Refusal to comply with orders of inspector.

27. In the event of any railway or steamship company or other person refusing or neglecting to carry out the orders of the inspector in regard to such cleansing or disinfection, or in the event of such company or person neglecting to maintain its yards, stables, sheds or other premises for the use of animals, in a clean, comfortable and sanitary condition, the inspector may condemn the said premises as unfit for use; whereupon the said premises shall not be used for the accommodation of animals until such time as the orders of the inspector in regard thereto have been satisfactorily carried out. 3 E. VII., c. 11, s. 28.

REGULATIONS.

Governor in Council may make regulations.

28. The Governor in Council may, from time to time, make such regulations and orders as to him seem necessary for any of the following purposes, that is to say:—

(a)

(a) For subjecting animals to quarantine, or for causing the same to be destroyed upon their arrival in Canada, or for destroying any hay, straw, fodder or other article whereby it appears to him that infection or contagion may be conveyed, and generally for regulating the importation or introduction into Canada of animals in such manner as to prevent the introduction of any infectious or contagious disease into Canada; Quarantine.

(b) For the keeping separate, treatment and disposal of, and dealing generally with animals affected with infectious or contagious diseases, or suspected of being so affected, or which have been in contact with animals so affected or suspected of being so affected, and for the prevention of the spread of infectious or contagious diseases; Separation.

(c) For segregating and confining animals within certain limits, for establishing districts of inspection or of quarantine, and for prohibiting or regulating the removal to or from such parts of or places in Canada, as he designates in such regulations, of animals, or of meats, skins, hides, horns, hoofs or other parts of any animals, or of hay, straw, fodder or other articles likely to propagate infection; Districts of quarantine.

(d) For purifying any yard, stable, outhouse or other place, or any wagons, carts, carriages, cars or other vehicles, or any vessels, and for directing how any animals dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of this Act, are to be destroyed or otherwise disposed of; Purification.

(e) For causing notices to be given of the appearance of any disease among animals; Notice of disease.

(f) For requiring notice of the appearance of any such disease among animals; Requiring notice.

(g) For prohibiting or regulating the holding of markets, fairs, exhibitions or sales of animals; Prohibiting markets.

(h) For declaring any market, railway yard, stock yard, pen, wharf, steamship, steam or other vessel, railway car or other vehicle, on or in which animals are exposed for sale, or are placed for the purpose of transit, to be infected, and for declaring the same to be no longer infected; Declaring market, etc., infected.

(i) For the slaughtering of animals as provided for by this Act; Slaughtering animals.

(j) For requiring proof of the fact that animals imported into or passing through Canada have not, at the time of their embarkation, been brought from any place or locality where any contagious or infectious disease is, at the said time, in existence; Proof as to animals imported.

(k) For exempting certain contagious and infectious diseases from the operation of certain specified clauses of this Act, and for dealing with the said diseases as may to him seem necessary and advisable; Certain exceptions.

(l)

Generally.

(l) Generally, any orders which he thinks it expedient to make for the better execution of this Act, or for the purpose of, in any manner, preventing the spreading of and for the extirpation of contagious or infectious disease among animals, whether any such orders are of the same kind as the kinds enumerated in this section or not.

2. The Governor in Council may, from time to time, define the limits of ports and of other circumscriptions for the purposes of this Act. 3 E. VII., c. 11, ss. 15, 29 and 30.

Preventing removal of animals.

29. The Minister may, from time to time, make such regulations as to him seem necessary for preventing the removal, without a license signed by an inspector or other officer appointed as aforesaid, of live animals, or the hide, skin, hair, offal of any animals or any part thereof, the carcass or any remains of any animal, any dung of animals, and any hay, straw, litter or other thing commonly used for or about animals, out of an infected place. 3 E. VII., c. 11, s. 30.

Effect of such orders.

30. Every regulation made under the provisions of this Act shall have the like force and effect as if it had been embodied in this Act. 3 E. VII., c. 11, s. 31.

PUBLICATION AND EVIDENCE.

Publication of orders in council.

31. Every order in council prohibiting the importation or the introduction of animals into Canada, or establishing quarantines for animals, ordering the slaughtering of animals or declaring any market, railway yard, stock yard, pen, wharf, steamship, steam or other vessel, railway car or other vehicle to be infected, and every order of the Minister declaring any place infected, shall be published twice in the *Canada Gazette*. 3 E. VII., c. 11, s. 32.

Orders in council to be evidence.

32. An order of the Governor in Council declaring any market, railway yard, stock yard, pen, wharf, steamship, steam or other vessel, railway car or other vehicle to be infected, or of the Minister, declaring a place to be an infected place, or a copy of the declaration of the inspector certified by him, a notice of which has been delivered as required by this Act, shall be *prima facie* evidence of the existence of disease and other matters to which the order or declaration relates. 3 E. VII., c. 11, s. 33.

Proof of orders or regulations.

33. Any order or regulation made or issued under this Act, or under any order of the Governor in Council, or of the Minister, may be proved by the production of a printed or other copy of such order or regulation, certified by the Minister; and any such order or regulation shall, until the contrary is proved, be deemed to have been duly made and issued at the time at which it bears date. 3 E. VII., c. 11, s. 34.

34.

Inspector's certificate.

34. The certificate of an inspector or an officer, as aforesaid, to the effect that an animal is affected with an infectious or contagious disease shall, for the purposes of this Act, be *prima facie* evidence of the matter certified. 3 E. VII., c. 11, s. 35.

OFFENCES AND PENALTIES.

Neglect to give notice.

35. Every person who neglects to give notice, as required by this Act, of any facts discovered or perceived by him indicating the appearance or the existence of infectious or contagious disease among animals owned by him or under his special care, or who conceals the existence of infectious or contagious disease among animals, shall incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, ss. 3 and 4.

Keeping diseased animals.

36. Every person who turns out, keeps or grazes in or upon any forest, wood, moor, beach, marsh, common, waste-land, open field, road-side, or other undivided or uninclosed land, any animal, knowing it to be infected with or labouring under any infectious or contagious disease, or to have been exposed to infection or contagion, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, s. 5.

Bringing such animals to market.

37. Every person who brings or attempts to bring into any market, fair or other place, any animal known by him to be infected with or labouring under any infectious or contagious disease, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, s. 6.

Selling or putting off such animals.

38. Every person who sells or disposes of, or puts off, or offers or exposes for sale, or attempts to dispose of or put off any animal infected with or labouring under any infectious or contagious disease, or the meat, skin, hide, horns, hoofs or other parts of an animal infected with or labouring under any infectious or contagious disease at the time of its death, whether such person is the owner of the animal, or of such meat, skin, hide, horns, hoofs or other parts of such an animal, or not, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, s. 7.

Throwing carcasses into rivers, etc.

39. Every person who throws or places, or causes or suffers to be thrown or placed, in any river, stream, canal, navigable or other water, or in the sea, within ten miles of the shore, the carcass of an animal which has died of disease, or which has been slaughtered as diseased or as suspected of disease, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, s. 8.

Digging up any such

40. Every person who, without lawful authority or excuse, digs up or causes or allows to be dug up the buried carcass of

carcasses, when buried.

of an animal which has died or is suspected of having died from infectious or contagious disease, or which has been slaughtered as diseased or as suspected of disease, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, s. 9.

Impeding execution of this Act.

41. Every person who refuses to admit any inspector or other officer into any place or premises or any steamship, vessel or boat, or any carriage, car, truck, horse-box, or other vehicle used for the carriage of animals, or who obstructs or impedes the execution of any order or regulation made by the Governor in Council or the Minister under this Act, shall, for every such offence incur a penalty not exceeding one hundred dollars; and the inspector or other officer may apprehend the offender and take him forthwith before a justice of the peace to be dealt with according to law; but no person so apprehended shall be detained in custody, without the order of a justice, longer than twenty-four hours. 3 E. VII., c. 11, s. 37.

Forfeiture of animals imported contrary to order in council.

42. If any animals are imported or introduced, or attempted to be imported or introduced into Canada, contrary to the provisions of any order or regulation made in pursuance of this Act, the animals shall be forfeited and may be forthwith destroyed or disposed of, as the Minister or any person employed by him in that behalf directs; and every person who imports or introduces, or attempts to import or introduce, any animal into Canada, contrary to the provisions of any such order or regulation, shall incur a penalty not exceeding two hundred dollars, for every animal so imported or introduced, or attempted to be imported or introduced by him. 3 E. VII., c. 11, s. 38.

Unlawful removal of any animal.

43. Every person who moves, or causes or allows to be moved, any animal, hide, skin, hair, wool, horn, hoof, offal, carcass, meat, dung, hay, straw, litter or other thing in violation of the provisions of this Act with respect to infected places, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, s. 39.

Entering when entrance is forbidden.

44. Whenever a person having animals in his possession or keeping within a district wherein infectious or contagious disease exists, affixes at the entrance to a building or inclosed place in which such animals are kept, a notice forbidding persons to enter into that building or place without his permission, any person not having a right of entry or way into that building or place who knowingly enters into the same, or any part thereof, in violation of the notice, shall, for every such offence, incur a penalty not exceeding twenty dollars. 3 E. VII., c. 11, s. 40.

Neglect to cleanse vessel.

45. Every person who fails to comply with the requirements of any order made under the authority of this Act respecting the

the cleansing and disinfecting of steamships, vessels, boats, pens, carriages, trucks, horse-boxes or vehicles used by such person for the carriage of animals, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, s. 41.

Violation of regulations.

46. Every person who violates any provision of this Act, or of any regulation made by the Governor in Council or by the Minister, under the authority of this Act, in respect to which no penalty is hereinbefore provided, shall, for every such offence, incur a penalty not exceeding two hundred dollars. 3 E. VII., c. 11, s. 42.

PROCEDURE.

Place of trial.

47. Every offence against this Act, or against any order or regulation of the Governor in Council, or of the Minister, and every cause of complaint under this Act, may be prosecuted and tried either in the place in which such offence or cause of complaint was committed or arose, or in any place in which the person charged or complained against happens to be. 3 E. VII., c. 11, s. 44.

Recovery of penalties.

48. Every penalty imposed by this Act shall be recoverable, with costs, before any two justices of the peace, or any magistrate having the powers of two justices of the peace, under Part XV. of the Criminal Code. 3 E. VII., c. 11, s. 45.

HEALTH OF ANIMALS BRANCH.

QUARANTINE REGULATIONS.

Authorized by Order in Council, dated 30th November, 1909.

INTERPRETATION.

Sec. 1. In these Regulations, unless the context otherwise requires:—

(*a*) The expression 'the Minister' means the Minister of Agriculture;

(*b*) The expression 'inspector' means a veterinary or other inspector duly appointed under the provisions of the Animal Contagious Diseases Act;

(*c*) The expression 'veterinary inspector' means a duly qualified veterinary surgeon appointed an inspector under the provisions of the Animal Contagious Diseases Act;

(*d*) The expression 'inspection' means an inspection made by a duly authorized inspector;

(*e*) The expression 'contagious' means communicable by close contact or inoculation;

(*f*) The expression 'infectious' means communicable in any manner;

(*g*) The expression 'infectious or contagious disease' includes, in addition to other diseases generally so designated, glanders, farcy, maladie du coït, contagious pleuro-pneumonia, foot and mouth disease, rinderpest, anthrax, Texas fever, hog cholera, swine plague, mange, scab, rabies, tuberculosis, actinomycosis and variola ovina.

Sec. 2. The Veterinary Director General is in charge of the Health Animals Branch of the Department of Agriculture.

Sec. 3. The following Customs port are hereby declared to be Animals Quarantine Stations, and all animals imported into Canada subject to quarantine must be entered through said stations, viz.:—Halifax, N.S.; St. John, N.B.; Charlottetown, P.E.I.; Sherbrooke and St. Johns, Que.; Bridgeburg, Windsor and Sarnia, Ont.; Emerson, Gretna and Bannerman, Man.; North Portal, Wood Mountain, Big Muddy and Willow Creek, Sask.; Pendant d'Oreille, Coutts and Twin Lakes, Alta.; Gateway, Kingsgate, Rossland, Nelson, Grand Forks, Midway, Myncaster, Vancouver and Victoria, B.C.; Whitehorse, Y.T. Quebec is also declared to be an Animals' Quarantine Station in so far as importations into Canada by sea are concerned.

Sec. 4. Animals subject to inspection only, but which are not subject to quarantine, may enter through the aforesaid and at the following ports:—Pictou, North Sydney and Yarmouth, N.S.; St. Stephens, Woodstock, McAdam Junction, Edmunston, Grand Falls, St. Leonards, Debec Junction, Florenceville and Aroostook Junction, N.B.; Comin's Mills, Lake Megantic, Coaticooke, Beebe Junction, Highwater, Abercorn, St. Armand, Lacolle Junction, Noyan Junction, Athelstan, Dundee and St. Agnes de Dundee, Que.; Cornwall, Prescott, Morrisburg, Brockville, Kingston, Cobourg, Toronto, Niagara Falls, Sault Ste. Marie, Port Arthur, Rainy River and Fort Frances, Ont.; Marienthal, Sask.; Rykerts, Osoyoos, Huntingdon, Keremeos, New Westminster, White Rock, Nanaimo, and Bridesville, B.C.

Sec. 5. The Minister of Agriculture is hereby empowered to cancel as quarantine and inspection stations any of the places above named, and to select such other sites in exchange for, or in addition to, the above as he may from time to time deem expedient.

IMPORTATIONS IN GENERAL.

Sec. 6. The Minister may prohibit or regulate the importation of animals from any country or any district where he has reason to believe that contagious disease of animals exists.

Sec. 7. (*a*) Persons contemplating the importation of animals from any part of the world, except the United States and Newfoundland, must first obtain from the Minister a permit therefor. Such permits shall not be available at any port other than the one mentioned therein.

(*b*) Applications for such permits shall be in writing, and shall state the number and kind of animals for which the permit is applied, the country of origin and probable date of shipment, the port of embarkation, the port at which the animals are to be landed and the approximate date of their arrival. The statements contained therein may be required to be verified on oath, the Minister deciding in every case whether a permit will be granted.

(*c*) Animals from countries other than those above mentioned arriving at any port in Canada without such permit shall not be admitted to Canada unless and until ordered by the Minister.

(*d*) Unless otherwise ordered by the Minister, the provisions of this section shall not apply to the importation of horses from any of the countries of Europe.

Sec. 8. The importation by sea into Canada of animals from all countries, other than the United States, Newfoundland and Mexico, is prohibited except at the ports of Victoria and Vancouver, B.C.; Quebec, Que.; St. John, N.B.; Halifax, N.S.; Charlottetown, P.E.I., and such other port as may hereafter be indicated by the Minister.

Sec. 9. Animals imported via United States ports must be accompanied not only by the necessary health certificates from the country of origin, but also by a certificate of quarantine or inspection signed by a Veterinary Inspector of the United States Bureau of Animal Industry.

Sec. 10. Persons in charge of vessels conveying animals to Canada must immediately on arrival in port, notify the Superintendent of the Animals Quarantine Station of the arrival of such vessel and the number and kind of animals on board thereof.

Sec. 11. All importers must certify under oath, before making Customs entry, the place of origin of the animals imported by them.

Sec. 12. All animals arriving in Canada through any of the above mentioned ports on the Canadian seaboard shall be subject to inspection on arrival by inspectors who may, from time to time, be appointed for that purpose.

Sec. 13. All inspections of imported animals must be made in daylight.

Sec. 14. For the purpose of carrying out these Regulations, inspectors shall have free access to any wharf, vessel, car, or to any place where animals may be found.

Sec. 15. Inspectors shall visit the vessels or cars conveying animals into the said ports, and after inspecting such animals and finding them free from disease, shall superintend their landing or unloading, order them to be placed and disposed of according to the requirements of the case, and see that those to be quarantined are conveyed to the proper quarantine station. Inspectors shall also superintend the landing, unloading and disposal of fodder, litter, blankets, troughs and other articles which may be used by or for the said animals.

Sec. 16. Importers of animals will be required to certify under oath that the health certificates referred to in these Regulations apply to the said animals and to no other, and that the district named is the actual one from which these animals came.

Sec. 17. Any unauthorized interference with animals after inspection, whether by substitution or otherwise, or any evasion, or misrepresentation, will be deemed a breach of these Regulations, and in addition will render the shipment liable to seizure and detention pending the orders of the Minister as to its disposal.

Sec. 18. Inspectors may, if they deem it necessary, order the cleansing and purifying of any vessel, place, vehicle, building or article, and direct such precautionary measures to be taken as they may consider advisable, pending the decision of the Minister as to the ultimate disposal of such vessel, place, vehicle, building or article.

Sec. 19. No person shall import or introduce, or attempt to import or introduce, into Canada any animal contrary to these Regulations or which is affected with any contagious or infectious disease, and any animal which is imported or introduced, or attempted to be imported or introduced, into Canada contrary to these Regulations or which is affected with or suspected of being affected with any contagious or infectious disease, may be forthwith destroyed, refused admission to Canada, or otherwise disposed of as the Veterinary Director General may direct.

Sec. 20. The importation of head ropes which have been used for tying up cattle is prohibited, and all vessels carrying or having on board such ropes in contravention of this Regulation shall be liable to be declared to be infected under the Animal Contagious Diseases Act.

Sec. 21. The importation of the manure of swine is prohibited.

Sec. 22. Any inspector may declare any railway car, or other land or water conveyance bringing animal manures into Canada, an infected place within the meaning of the provisions of the Animal Contagious Diseases Act, whenever he shall have reason to believe or to have well founded suspicion that such may be a source of danger as respects the introduction of disease; and the unloading of such car or other land or water conveyance shall be in consequence prohibited until otherwise ordered in accordance with the provisions of the said Act.

HORSES, MULES AND ASSES.

Sec. 23. Horses, mules and asses imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no glanders, maladie du coït or other serious infection or contagious disease affecting horses has existed in said district for a period of six months prior to their shipment.

Sec. 24. Horses, mules and asses imported from countries other than the United States, Newfoundland and Mexico, consigned to Montreal, may be, unless otherwise ordered by the Minister, inspected at that port. Such animals landing at any of the other ports named shall be inspected at such ports.

CATTLE.

Sec. 25. Cattle imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no contagious pleuro-pneumonia, rinderpest or foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 26. (*a*) A quarantine of thirty days shall be enforced upon cattle imported from the United Kingdom, to be counted from the date of arrival at the quarantine station.

(*b*) A quarantine of ninety days shall be enforced upon cattle imported from all other countries except the United States, Newfoundland and Mexico, to be counted from the date of clearance of the vessel carrying the same from the port at which they were embarked.

OTHER RUMINANTS.

Sec. 27. Sheep and goats imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 28. A quarantine of thirty days shall be enforced upon all sheep and goats imported from countries other than the United States, Newfoundland and Mexico, to be counted from the date of clearance of the vessel carrying the same from the port at which they were embarked.

SWINE.

Sec. 29. Swine imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no hog cholera, swine plague or foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 30. A quarantine of thirty days shall be enforced upon all swine imported from countries other than the United States, Newfoundland and Mexico, to be counted from the date of clearance of the vessel carrying the same from the port at which they were embarked.

IMPORTATION OF ANIMALS FROM THE UNITED STATES, NEWFOUNDLAND AND MEXICO.

Sec. 31. All animals imported into the Dominion of Canada from the United States, Newfoundland and Mexico, must be accompanied by a statutory declaration or affidavit made by the owner or importer, stating clearly the purpose for which said animals are imported, viz.: whether for breeding purposes, for milk production, for work, for grazing, feeding or slaughter, or whether they form part of settlers' effects, or whether they are entered for temporary stay, as provided by these Regulations.

Sec. 32. Said declaration or affidavit must be presented to the Collector of Customs at the port of entry, who will decide whether the animals are entitled to entry under these Regulations, and who will notify the Veterinary Inspector of the Department of Agriculture in all cases where the Regulations require an inspection to be made.

ANIMALS FROM THE UNITED STATES.

HORSES, MULES AND ASSES.

Sec. 33. The importation of branded or range horses, mules and asses, other than those which are gentle and broken to harness or saddle, is prohibited.

Sec. 34. Horses, mules or asses, shall be inspected, and must be accompanied by:—

(*a*) A satisfactory certificate of mallein test dated not more than thirty days prior to the date of entry, and signed by an inspector of the United States Bureau of Animal Industry; or

(*b*) A similar certificate from a reputable veterinarian, provided such certificate is endorsed by an inspector of the said Bureau of Animal Industry; or

(*c*) A similar certificate from an inspector of the Canadian Department of Agriculture.

Sec. 35. When not so accompanied, such horses, mules or asses must be submitted to the mallein test either at the quarantine station where entry is made, or, under such restrictions as the Veterinary Director General may prescribe, at point of destination.

Sec. 36. When tested at the port of entry, if any reactors are found they shall be slaughtered without compensation, or definitely marked and returned to the United States, and must not again be presented for entry. All horses, mules or asses in the same consignment shall be returned to the United States, but the non-reactors may be again presented for entry and further test after the lapse of a period of not less than fifteen days from the date of the first test, provided that satisfactory evidence is produced to the effect that they have not, during the said period, been in contact with affected animals. When tested at destination points all animals reacting to the test will be slaughtered without compensation, while those comprising the rest of the shipment will be detained in quarantine until it is shown to the satisfaction of the Veterinary Director General that they are free from disease.

Sec. 37. No compensation will, under any circumstances, be paid for horses reacting to mallein within six months after the date of their importation to Canada.

CATTLE.

Sec. 38. All cattle shall be inspected, and if so ordered by the Minister, may be detained, isolated, submitted to the tuberculin test, dipped or otherwise treated, or in default of such order, where the inspector has reason to believe or suspect that animals are affected with or have been exposed to contagious or infectious disease.

Sec. 39. Cattle for breeding purposes and milk production six months old or over, if unaccompanied by a satisfactory tuberculin test chart dated not more than thirty days prior to the date of entry and signed by a veterinarian of the United States Bureau of Animal Industry, must be detained in quarantine for one week or such further period as may be deemed necessary, and subjected to the tuberculin test; cattle reacting thereto must be returned to the United States or slaughtered without compensation.

Sec. 40. Importers may be required to furnish a statutory declaration that the chart produced applies to the cattle it purports to describe and no other.

OTHER RUMINANTS.

Sec. 41. All sheep and goats shall be inspected, and, if so ordered by the Minister, may be detained, isolated, dipped or otherwise treated, or, in default of such order, where the inspector has reason to believe or suspect that the animals are affected with or have been exposed to contagious or infectious disease.

SWINE.

Sec. 42. All swine must be accompanied by a certificate signed by a veterinarian of the United States Bureau of Animal Industry, stating that neither swine plague nor hog cholera has existed within a radius of five miles of the premises in which they have been kept for a period of six months immediately preceding the date of shipment, but such swine shall nevertheless be inspected, and shall be subjected to a quarantine of thirty days before being allowed to come in contact with Canadian animals.

ANIMALS FOR EXHIBITION.

Sec. 43. Animals other than swine may be admitted on inspection at quarantine and inspection ports only, for purposes of exhibition or other temporary stay, subject to the usual Customs regulations.

ANIMALS FOR TRANSIT THROUGH CANADA.

Sec. 44. Animals may be admitted from any part of the United States into Canada for transit to any other part of the United States in bond, and (with the exception of swine) will be admitted to Canada in bond for transit to any Canadian port for exportation by sea to Europe or elsewhere. Such animals are to be subject to inspection at the Canadian port of shipment.

Sec. 45. The transit of such animals shall be subject to such regulations as the Minister shall, from time to time, prescribe.

ANIMALS FROM MEXICO.

Sec. 46. Any person contemplating the importation of animals from Mexico must, in addition to all other requirements of this Order, first obtain from the Minister a permit therefor.

Applications for such permits shall be in writing, and shall state the number and kind of animals to be imported, the district and state in Mexico whence they are to be shipped and the probable date of their arrival at and the name of the Canadian port of entry. The statements contained therein may be required to be verified on oath, the Minister deciding in every case whether a permit will be granted.

MEXICAN ANIMALS BONDED THROUGH UNITED STATES TERRITORY FOR ADMISSION TO CANADA.

Sec. 47. Animals passing in bond through United States territory for importation into Canada must be accompanied by a certificate of health signed by a veterinarian of the United States Bureau of Animal Industry, and by an affidavit from the owner or importer that the said certificate refers to the animals in question. Such animals shall nevertheless be subject to inspection, and if necessary to detention, before being permitted to enter Canadian territory. If found diseased such animals are to be subject to and dealt with according to the orders of an inspector under instructions from the Veterinary Director General.

HORSES, MULES AND ASSES.

Sec. 48. The importation of branded or range horses, mules and asses other than those which are gentle and broken to harness or saddle is prohibited.

Sec. 49. All horses, mules and asses shall be inspected and shall be submitted to the mallein test before being allowed to enter Canada. If any reactors are found they shall be slaughtered without compensation.

CATTLE.

Sec. 50. All cattle shall be inspected and if so ordered by the Minister may be detained, isolated, submitted to the tuberculin test, dipped or otherwise treated, or, in default of such order, where the inspector has reason to believe or suspect that animals are affected with or have been exposed to contagious or infectious disease.

OTHER RUMINANTS.

Sec. 51. All sheep and goats shall be inspected, and if so ordered by the Minister may be detained, isolated, dipped or otherwise treated, or, in default of such order, where the inspector has reason to believe or suspect that the animals are affected with or have been exposed to contagious or infectious disease.

SWINE.

Sec. 52. All swine shall be inspected and shall be subjected to a quarantine of sixty days before being allowed to come in contact with Canadian animals.

ANIMALS FROM NEWFOUNDLAND.

Sec. 53. All animals imported from Newfoundland shall be inspected and if so ordered by the Minister, may be detained, isolated, tested, dipped or otherwise treated, or, in default of such order, where the inspector has reason to believe or suspect that animals are affected with or have been exposed to contagious disease.

REGULATIONS OF QUARANTINE.

Sec. 54. Quarantine stations shall be under the care and subject to the orders of the officers appointed for that purpose hereinafter referred to as superintendents, who shall have the general superintendence and control of the servants or other persons, and of all other matters connected therewith.

Sec. 55. Animals in any quarantine station shall be treated and dealt with under the direction of the superintendent of the said station and all articles used for, about or in connection with the said animals shall be in like manner subject to his direction and supervision.

Sec. 56. Cattle six months old or over imported from countries other than the United States, Newfoundland and Mexico, shall not be discharged from quarantine until they have been submitted to the tuberculin test by the superintendent of the quarantine or other duly authorized officer.

Sec. 57. Cattle reacting to the tuberculin test, but not showing clinical symptoms, shall be permanently marked in the right ear with the letter 'T' by the officer making the test, and may then be released at the expiry of the prescribed period of quarantine if found free from all other infectious or contagious diseases.

Sec. 58. Cattle showing clinical symptoms of tuberculosis shall be destroyed or otherwise disposed of as the Minister may direct.

Sec. 59. The Minister or the Veterinary Director General may authorize the destruction of any quarantined animal or all or any portion of the articles used in the care of the said animals, and such destruction shall take place under the supervision of the superintendent, and in the manner prescribed by him.

Sec. 60. The expenses of feeding, treating and caring for animals detained in quarantine, with the exception of those for the use of grounds and shelters, shall be borne by the owner or importer, and such expenses shall be paid before the animals are permitted to leave the quarantine, and in default of such payment within fourteen days after the expiration of the period of quarantine, the superintendent may, on fourteen days notice in writing, delivered or sent by mail to the owner or importer, cause the said animals to be sold to meet the said expenses, together with the expenses of and incidental to the sale of the said animals, the balance, if any, to be handed over to the owner.

Sec. 61. No animal under quarantine shall be allowed to come in contact with any Canadian animal until duly discharged from quarantine.

Sec. 62. No animal under quarantine shall be removed from a quarantine station until duly discharged therefrom by the superintendent or other duly authorized officer.

Sec. 63. No person shall remove or attempt to remove any animal from a quarantine station without the authority of the superintendent or other duly authorized officer.

Sec. 64. No indemnity shall be allowed for any injury or loss sustained in connection with any animal while detained in quarantine.

EXPORTATION.

Sec. 65. Canadian animals for transit to any shipping port of the United States for export by sea to Europe or elsewhere must be inspected at such places in Canada as the Minister may, from time to time designate; must not be shipped from the place of inspection until they have been certified by a duly authorized veterinary inspector to be free from infectious and contagious disease and otherwise fit for export, and must not be permitted by collectors of customs to leave Canada unless accompanied by such certificate.

Sec. 66. Animals for exportation by sea should, if possible, reach the port of exportation not less than twelve hours before shipment for rest and inspection. Animals failing to do so shall be liable to detention in the discretion of the inspector.

Sec. 67. Inspectors shall at all times have full power to detain animals for such time as they consider sufficient to enable them to make a thorough and satisfactory inspection and to ascertain that all the provisions of these Regulations relating thereto have been duly observed and complied with.

Sec. 68. Owners or persons in charge of animals for exportation shall give twenty-four hours notice, addressed to the inspector at his office, stating the number and kind of such animals and the expected time of their arrival at the port of exportation.

Sec. 69. No animals except as hereinafter provided, shall be permitted to be placed on board any steamship or other vessel for exportation at any Canadian port until they have been inspected and approved by a duly authorized veterinary inspector at such port and certified by him to be free from contagious disease and in every way fit for export; such inspection to be made within twenty-four hours of embarkation.

Sec. 70. For the purpose of carrying out these Regulations, inspectors shall have free access to any wharf, vessel, car or to any place where animals may be found.

Sec. 71. All inspections for export must be made in daylight.

Sec. 72. Owners or shippers of stock during the progress of inspection at any port of exportation shall, with the means at their disposal, give every required assistance to the inspector at such port, and move the animals according to his directions. In case the owner or shipper refuses or neglects to furnish the necessary assistance, the inspector may employ men at the cost of the owner or shipper, and such cost shall be paid to the inspector before a clean bill of health is given.

Sec. 73. Any unauthorized interference with animals after inspection, whether by substitution or otherwise, or any other evasion, or misrepresentation, will be deemed a breach of these Regulations.

Sec. 74. Inspectors may, if they deem it advisable for purposes of identification, mark animals inspected by them. A certificate of inspection, stating the name of the owner, the number, sex and class of animals in the consignment and certifying to their freedom from contagious disease, will be furnished by the inspector, and must be produced to the Collector of Customs before embarkation.

Sec. 75. Such animals as may have been exposed to contagious or infectious disease or affected with or suspected of being affected with contagious or infectious disease, shall be detained and dealt with according to the orders of the inspector under instructions from the Veterinary Director General.

Sec. 76. Inspectors may reject animals for any reasonable cause.

Sec. 77. The Minister may from time to time order that the provisions of these Regulations requiring the inspection and certification as aforesaid, may be waived when in his opinion such action is necessary and desirable.

Sec. 78. The Collector of Customs of any port in Canada whence animals are exported shall not give a clearance to any ship having animals on board for exportation, other than those exempted by ministerial order under the provisions of the preceding section, without having produced to him a certificate, signed by an inspector, to the effect that the animals therein referred to are free from contagious and infectious disease and in every way fit for shipment.

INFECTED VESSELS.

Sec. 79. Vessels which have carried cattle, sheep or other ruminants, among any of which 'foot and mouth disease' shall have been found, shall be prohibited, for a period of sixty days thereafter, from loading cattle, sheep or other ruminants or swine, in any Canadian port; and, further until such vessel shall have been thoroughly cleansed and disinfected, under the supervision of an inspector or other duly authorized officer.

CUSTOMS OFFICERS.

Sec. 80. Collectors of Customs throughout Canada shall see that the various exigencies and requirements of the present order, or any ministerial or other order made thereunder, are fulfilled before granting any permit which requires before it is given, any act to be performed or any inspection or other proceeding to be made or taken, and they shall see that the prohibitions prescribed and rules established by this order as hereinbefore mentioned, and the instructions which may be issued by the Minister, are obeyed, and in case of any infraction of the provisions of the present order, or any of them, taking place, they shall report at once to the Minister the nature and extent of such infraction.

GENERAL PROVISIONS.

Sec. 81. To provide against the possibility of diseased animals being carried from place to place, through Canadian territory, or conveyed to and shipped from ports, it is ordered as follows:—

An inspection of animals may be made at any place or time by any veterinary inspector under authority from the Veterinary Director General.

Sec. 82. Such animals as may be found affected with or to have been exposed to contagious or infectious disease shall be dealt with according to the provisions of the Animal Contagious Diseases Act.

Sec. 83. On infectious or contagious disease of animals being discovered on board any steamship, vessel or car, or in any stable, shed, yard or other place, it shall be the duty of the inspector, on the removal of the infected animal or animals, to superintend the thorough disinfection of such steamship, car, stable, shed, yard or other place, without loss of time, in a manner satisfactory to an inspector.

Sec. 84. All yards, stables, sheds or other premises used by railway or steamship companies or other persons, for the accommodation of animals shall be maintained in a clean, comfortable and sanitary condition and shall be subject at all times to inspection by inspectors acting under the authority of the Minister, who, when they deem such action necessary, may order the cleansing and disinfection in a satisfactory

manner of the said yards, stables, sheds, or other premises as provided in the Animal Contagious Diseases Act.

Sec. 85. In the event of any owner, lessee or occupant of any yard, stable, shed or other premises or any railway or steamship company or person refusing or neglecting to carry out the orders of the inspector in regard to cleansing and disinfection as aforesaid or in the event of such owner, lessee or occupant, company or person neglecting to maintain his or its yards, stables, sheds or other premises for the use of animals, in a clean, comfortable and sanitary condition, the inspector may condemn the said premises as unfit for use, whereupon the said premises shall not be used for the accommodation of animals until such time as the orders of the inspector in regard thereto have been satisfactorily carried out.

Sec. 86. Stock cars or other vehicles used for the conveyance of live stock shall be cleansed and disinfected at such times and places as the Minister may order. Such disinfection shall be done by the thorough cleansing of the car and its subsequent whitewashing with lime and carbolic acid in the proportion of 1 pound commercial carbolic acid to 5 gallons of limewash or such other process as may be approved by the Veterinary Director General.

Sec. 87. Shippers may refuse to place their animals on uncleaned cars and may lodge a complaint with the nearest inspector, who shall either cause such cars to be cleansed and disinfected, as above, at the expense of the railway company, or shall prohibit their use until they have been so cleansed and disinfected.

Sec. 88. The Minister may from time to time make such orders, not inconsistent with the provisions of this order as may appear to him necessary or expedient.

Sec. 89. Any person who violates any provision of this order, shall incur the penalties prescribed by the Animal Contagious Diseases Act.

MINISTERIAL ORDER No. 33.

Under and by virtue of the authority conferred upon me by the provisions of the order in council of November 30, 1909, containing regulations relating to Animals Quarantine, I do hereby order that:—

1. All stock cars intended for the conveyance of animals from any point in Canada to the United States, or for transit through United States territory to any other part of Canada, must be thoroughly cleansed and disinfected before such animals are placed therein.

2. All cars conveying animals into Canada from the United States, whether such animals are intended for points in Canada or for transit to some other part of the United States, must be inspected, and unless found in a clean and sanitary condition will be returned to the United States.

3. All stock cars, whether of Canadian origin or not, and whether empty or conveying merchandise other than live stock, entering Canada from the United States must, if not already showing evidence of having been so treated, be thoroughly cleansed and disinfected to the satisfaction of an inspector of this department, otherwise they will be returned to the United States.

This provision shall not apply to empty stock cars, bonded and sealed with a customs seal, entering Canada from the United States in transit to some other part of the United States.

4. Stock cars which have conveyed animals from the United States to points in Canada must be thoroughly cleansed and disinfected immediately after being unloaded, and before being returned to the country whence they came.

5. All hogs entering Canada for transit and all cars conveying such hogs must be inspected by the inspectors of this department immediately after entering Canadian territory. Any cars containing hogs showing evidence of disease, and any cars which are dirty or which do not, in the opinion of the inspector, meet in every way the requirements of the regulations of this department, are to be immediately returned to the United States.

6. All inspections, as provided above, must be made between the hours of 8 a.m. and 4 p.m.; provided that should any railway company furnish artificial lighting and other facilities satisfactory to the department, inspections may be made for such company at any hour, on due notice being given to the inspector on duty for the time being.

7. All cars conveying swine from the United States into Canada intended for transit to some other part of the United States, must be fitted with ten-inch foot boards in a manner satisfactory to the inspectors of this department.

8. The practice of douching or drenching with water United States hogs, or cars containing United States hogs, while in transit through Canada is strictly prohibited.

9. United States hogs while in transit through Canada must not be unloaded from cars containing them on any pretext whatever.

10. Any animal dying from any cause whatever when in transit through Canada from one point in the United States to another in that country, must not be removed from the car in which it died while in Canadian territory.

(Signed) GEO. F. O'HALLORAN,
Deputy Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,
OTTAWA, December 1, 1909.

MINISTERIAL ORDER No. 34.

Under and by virtue of the authority conferred upon me by the provisions of the order in council of November 30, 1909, containing regulations relating to Animals Quarantine, I do hereby order that:—

1. All range cattle entering Canada from the United States except for transit in bond, shall be detained at the port of entry, and dipped or otherwise treated to the satisfaction of an inspector.

2. In cases where dipping or treatment is not performed by owners or importers at their own expense, inspectors are authorized to charge the actual cost of treatment, with a maximum charge of 25 cents for each animal so treated.

3. Cattle accompanied by a certificate from an inspector of the United States Bureau of Animal Industry stating that they are not affected with and have not been exposed to the contagion of mange, or that they have, within the thirty days preceding the date of their arrival at the Canadian boundary, been dipped or otherwise treated in a manner satisfactory to the officers of the said Bureau of Animal Industry, may be admitted without treatment.

4. The above order shall not apply to domestic cattle the property of settlers or others, which have not been in contact with animals affected or suspected of being affected, and which on inspection show no evidence of being themselves affected with mange.

(Signed) GEO. F. O'HALLORAN,
Deputy Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,
OTTAWA, December 1, 1909.

SESSIONAL PAPER No. 15c

MINISTERIAL ORDER No. 35.

Under and by virtue of the authority conferred upon me by the provisions of the order in council of November 30, 1909, containing regulations relating to Animals Quarantine, I do hereby order that:—

1. All Canadian animals intended for export to Europe via United States ports must be inspected by a regularly appointed veterinary inspector of this department, and must not be permitted to leave Canada unless accompanied by a certificate of the said inspector to the effect that they are free from contagious and infectious disease, and otherwise fit for export.

2. Shipments of such animals originating in, or passing through Toronto not routed via Montreal, may be inspected in Toronto.

3. Shipments routed via Montreal must be inspected at Montreal.

4. Shipments not inspected at Toronto or Montreal must be inspected and certified in a similar manner by a regularly appointed veterinary inspector at the place of crossing the international boundary.

5. Railway companies handling animals for export via United States seaports must furnish facilities for unloading, inspection and reloading of the animals at boundary points, and except at places specially mentioned above, must give due notice of intended shipments, so as to ensure prompt inspection and the avoidance of delay.

6. All inspections must be made by daylight.

(Signed) GEO. F. O'HALLORAN,
Deputy Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,
OTTAWA, December 1, 1909.

MINISTERIAL ORDER No. 36.

Under and by virtue of the authority conferred upon me by the provisions of the order in council of November 30, 1909, containing regulations relating to Animal Quarantine, I do hereby order that:—

1. All sheep originating in that part of the province of Ontario lying west and south of a line commencing at the southeast corner of the county of Ontario, thence in a northerly direction along the eastern boundary of the said county to the northeast corner thereof, thence in a westerly direction along the northern boundary of the said county to the Severn river, thence along the Severn river to the Georgian bay; as also all sheep originating in Manitoulin Island, or any of the other Canadian islands in Lake Huron, must, if consigned to points in the United States, whether intended for export to Europe or not, be inspected by a regularly appointed veterinary inspector of this department.

2. Shipments of such sheep originating in, or passing through Toronto not routed via Montreal, may be inspected in Toronto.

3. Shipments routed via Montreal must be inspected at Montreal.

4. Shipments not inspected at Toronto or Montreal must be inspected and certified in a similar manner by a regularly appointed veterinary inspector at the place of crossing the international boundary.

5. Railway companies handling sheep for export from Ontario to the United States must furnish proper facilities for the unloading, inspection and reloading of sheep at boundary points, and except at the places specially mentioned above, must give due notice of intended shipments, so as to ensure prompt inspection and the avoidance of delay.

6. All inspections must be made by daylight.

7. This order shall not apply to sheep for breeding, grazing or feeding which are accompanied by a certificate signed by a Canadian official veterinarian stating that no contagious disease affecting sheep has existed in the district in which the animals have been kept for six months preceding the date of exportation, or by a certificate signed by a regularly appointed inspector of this department stating that the animals have been twice dipped in one of the official dips approved by the Secretary of the United States Department of Agriculture.

(Signed) GEO. F. O'HALLORAN,
Deputy Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,
OTTAWA, December 1, 1909.

MINISTERIAL ORDER No. 37.

Under and by virtue of the authority conferred upon me by the provisions of the order in council of November 30, 1909, containing regulations relating to Animals Quarantine, I do hereby order that:—

1. All empty stock cars arriving at or passing through any of the places hereinafter mentioned shall, unless bearing evidence of having previously been so treated, be cleansed and disinfected under the supervision of an inspector before being allowed to proceed:—

Halifax, N.S.; St. John, N.B.; Montreal, Que.; Toronto, Ont.; Winnipeg, Man.; Moosejaw, Sask.; Medicine Hat, Lethbridge, Calgary, Edmonton and Strathcona, Alta.; Cranbrook, Nelson, Revelstoke and Vancouver, B.C.

(Signed) GEO. F. O'HALLORAN,
Deputy Minister of Agriculture.

DEPARTMENT OF AGRICULTURE,
OTTAWA, December 1, 1909.

APPENDIX No. XVIII.

THE MEAT AND CANNED FOODS ACT, AS AMENDED MAY 4, 1910. THE REGULATIONS MADE THEREUNDER GOVERNING THE INSPECTION OF MEATS, BY ORDERS IN COUNCIL, AUGUST 1, 1910, AND NOVEMBER 12, 1910, AND THE INSPECTION OF PRESERVED FRUITS, VEGETABLES AND MILK, BY ORDER IN COUNCIL, JULY 6, 1910.

AN ACT RESPECTING THE INSPECTION OF MEATS AND CANNED FOODS, AS AMENDED MAY 4, 1910.

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. This Act may be cited as *The Meat and Canned Foods Act.*

2. In this Act, unless the context otherwise requires,—

(*a*) 'carcases' means the carcases of cattle, sheep, swine, goats, game or poultry;

(*b*) 'establishment' means any abattoir, packing house, or other premises in which such animals are slaughtered, or in which any parts thereof or products thereof, or fish, or fruit, or vegetables, are prepared for food for export or are stored for export;

(*c*) 'export' means export out of Canada, or out of any province to any other province thereof;

(*d*) 'food' includes every article used for food or drink by man, and every ingredient intended for mixing with the food or drink of man for any purpose;

(*e*) 'inspector' means an inspector appointed under this Act;

(*f*) 'Minister' means the Minister of Agriculture;

(*g*) 'regulations' means regulations made under the provisions of this Act;

(*h*) 'a farmer' is a person whose recognized occupation is that of farming, and who slaughters only such animals as are fed by him on his own premises.

3. All animals intended for slaughter in any establishment shall be inspected as provided by the regulations.

2. No animal shall be allowed to enter the parts of an establishment where slaughtering is carried on, unless it has undergone such inspection.

3. Every animal affected, or suspected of being affected, with contagious or other disease, shall be slaughtered under the supervision of the inspector and be disposed of as provided by the regulations.

4. All carcases and portions thereof of all animals, wherever slaughtered, intended for export, shall be inspected as provided by the regulations.

5. Unless the Minister otherwise directs, upon the report of an inspector, animals owned by farmers and slaughtered by them on their own premises, shall not be subject to inspection under the provisions of this Act.

6. Every carcass, or portion thereof, found to be healthy and fit for food, shall be marked by an inspector in such a manner as is provided by the regulations; and the carcass, or portion thereof, may then be dealt with as the owner thereof sees fit, subject to the further supervision of the inspector.

7. Every carcass or portion or product thereof prepared for food in any establishment and packed in cans or similar receptacles, or in any package whatever, shall be subject to inspection during the whole course of preparation and packing; and after

all the requirements of this Act regarding inspection have been complied with, and not until then, all such packages shall be marked by an inspector in such manner as is provided by the regulations.

8. The inspector may at any time re-inspect a carcass, or any portion or product thereof, in order to ascertain whether, subsequently to the first inspection thereof, it has undergone decomposition, or has otherwise deteriorated, or has been tampered with or adulterated by the use of preservatives or otherwise.

2. Every carcass, or portion or product thereof, sent out of an establishment and returned thereto for any purpose, shall not be again sent out therefrom without re-inspection.

9. Every carcass, or portion or product thereof, found, upon inspection or re-inspection, to be unhealthy or unfit for food, or which contains such ingredients or preservatives as may render it unfit for food, shall be marked by the inspector in such manner as is provided by the regulations, and shall thereupon be deemed to be condemned as unfit for food and shall be disposed of as provided by the regulations.

10. Any person slaughtering, or permitting the slaughtering of, animals and selling, or offering for sale or transportation for food purposes, for export a carcass, or any portion or product thereof, which is unhealthy or unfit for food, is guilty of an indictable offence and liable to one year's imprisonment.

2. Every one who is convicted of this offence after a previous conviction for the same crime shall be liable to two years' imprisonment.

11. The Governor in Council may, upon application of the owner thereof, exempt any establishment from the operation of the provisions of sections 3 and 4, and of sections 6 to 10, both inclusive, of this Act.

12. All articles prepared for food in any establishment and packed in cans or similar receptacles, or in any package whatever, shall be subject to inspection during the whole course of preparation and packing; and all such packages shall be marked with,—

(*a*) the initials of the Christian names, the full surname, and the address, or, in the case of a firm or corporation, the firm or corporate name and address, of the packer or of the first dealer obtaining them direct from the packer, who sells or offers the said articles for sale; and such dealer shall, upon the request of an inspector appointed under this Act, disclose the name of the packer of such article;

(*b*) a true and correct description of the contents of the package:

Provided, however, that if it be established to the satisfaction of the Governor in Council that such marking would hinder the sale of any of said articles in foreign markets or in the markets of the United Kingdom, he may exempt such articles from the provisions of this section.

13. All fish, fruit, or vegetables used in any establishment where these articles are prepared for export, shall be sound, wholesome, and fit for food; and any such articles or products thereof found in the said establishment unsound or unwholesome shall be confiscated and destroyed as provided by the regulations.

14. An inspection and close supervision of the sanitary conditions of all establishments shall be maintained, and they shall be conducted under such conditions, sanitary and otherwise, as may be prescribed by the regulations.

2. The inspector shall refuse to inspect or mark articles in any establishment where the sanitary conditions are not in accordance with the regulations.

15. In the event of the provisions of this Act, or any regulations, or the lawful instruction of an inspector not being complied with in any establishment, the Minister may withdraw the inspector therefrom, and may refuse to it the inspection, marking, and certification of the articles prepared therein, and may cause the establishment to be closed.

15*a*. No person shall offer or expose or have in his possession for sale any article subject to inspection under this Act, unless all the requirements thereof respecting the said article have been complied with.

16. No person shall offer or accept for export, or shall export, any article subject to inspection under this Act, unless its requirements regarding inspection and marking have been complied with in respect to such articles.

Every person offering any carcass, or portion or product thereof, for export, or exporting such carcass, portion or product, shall furnish such proof as is required by the regulations as to whether the articles so offered for export, or exported, are subject to inspection or not.

2. No clearance shall be granted to any vessel carrying any carcases, or any portions or products thereof, unless they are duly marked in accordance with the provisions of this Act.

3. The provisions of this section shall not apply to meats intended for consumption on board the vessels by which they are shipped from a Canadian port.

4. At the request of the owner of any establishment, the inspector in charge thereof shall issue certificates of inspection for any carcases or portions or products thereof intended for export. Such certificates shall be in such form as is provided by the regulations.

5. Notwithstanding anything in this section, the Governor in Council may, whenever it is deemed necessary or advisable to do so, authorize the export of any such article without inspection.

17. No article subject to inspection under this Act shall be offered or sold for export, or exported, under any name intended or calculated to deceive as to its true nature.

2. No package containing any article subject to inspection under this Act shall be marked with any label, brand, or mark which falsely represents the quantity or weight or contents of such package.

3. No package containing any article subject to inspection under this Act shall be marked with any label, brand, or mark which falsely represents the date when the articles or goods contained therein were packed.

18. Every person who, without authority, wilfully and wrongfully uses or imitates any mark, tag, label or certificate placed on or attached to any article in accordance with the provisions of this Act or of any regulation made thereunder, and every person who wilfully and wrongfully removes, alters, effaces or obliterates, or causes to be removed, altered, effaced or obliterated, wholly or partially, any such mark, tag, label or certificate, shall incur a penalty of one hundred dollars.

19. The Minister may appoint inspectors and other officers for the carrying out of the provisions of this Act, but such appointments shall be confirmed by the Governor in Council within thirty days of the date thereof.

2. No person shall be appointed as a veterinary inspector until he has passed such examination as is deemed necessary by the Governor in Council.

20. The Governor in Council may make such orders and regulations, not inconsistent with the provisions of this Act, as to him seem necessary for the carrying out of the provisions of this Act.

2. Such orders and regulations shall have the same force and effect as if embodied in this Act.

3. Every such order or regulation shall be published twice in *The Canada Gazette*.

4. Any such order or regulation may be proved by the production of a copy thereof certified by the Minister; and such order or regulation shall, until the contrary is proved, be deemed to have been duly made and issued on the date thereof.

21. The certificate of an inspector or other officer appointed under this Act, or any mark applied under this Act ,shall, for the purposes of this Act, be *prima facie* evidence of the matter which it purports to establish.

22. Any inspector or other officer appointed under this Act may, at any time, for the purpose of carrying into effect any provision of this Act, enter any place or premises, or any steamship, vessel or boat, or any carriage, car, truck, horse-box or other vehicle used for the carriage of articles subject to the provisions of this Act, and may require to be produced for inspection, or for the purpose of obtaining copies thereof or extracts therefrom, any books, shipping bills, bills of lading or other papers, but shall, if required, state in writing the grounds for his action in so doing.

23. Every person who refuses to admit, or who obstructs or impedes, an inspector or other officer acting in execution of this Act, or of any order or regulation made by the Governor in Council or the Minister thereunder, and every person who aids and assists him therein, shall, for every such offence, incur a penalty not exceeding five hundred dollars; and the inspector or other officer may apprehend the offender and take him forthwith before a justice of the peace to be dealt with according to law; but no person so apprehended shall be detained in custody without the order of the justice, longer than twenty-four hours.

24. Every person who moves, or causes or allows to be moved, any animal, or any article in violation of the provisions of this Act, shall, for every such offence, incur a penalty not exceeding five hundred dollars.

25. The provisions of *The Criminal Code* respecting the bribery and corruption of officials or employees of the Government extend to all inspectors and other persons appointed to carry out the provisions of this Act.

26. Every person who violates any provision of this Act, or of any regulation made by the Governor in Council or by the Minister under the authority of this Act, in respect to which no penalty is hereinbefore provided, shall for every such offence, incur a penalty not exceeding five hundred dollars.

27. Any inspector or constable may, without warrant, apprehend any person found committing an offence against the provisions of this Act, and shall take any person so apprehended forthwith before a justice of the peace to be examined and dealt with according to law; but a person so apprehended shall not be detained in custody, without the order of a justice, longer than twenty-four hours; and any inspector or constable may require that any animal or any article moved in violation of the provisions of this Act be forthwith taken back within the limits of the place whence it was moved, and may enforce and execute such requisition at the expense of the owner of such animal or article.

28. Every offence against this Act, or against any order or regulation of the Governor in Council or of the Minister, shall for the purposes of proceedings under this Act, or of such order or regulation, be deemed to have been committed, and every cause of complaint under this Act, or any such order or regulation, shall be deemed to have arisen, either in the place in which it actually was committed or arose, or in any place in which the person charged or complained against happens to be.

29. Every penalty imposed by this Act shall be recoverable, with costs, before any two justices of the peace, or any magistrate having the powers of two justices of the peace, under Part XV. of *The Criminal Code*.

30. The administration of any part of this Act may be assigned by the Governor in Council to any Minister other than the Minister of Agriculture, and in such case the Minister to whom such assignment is made shall have the same powers with respect to the part of this Act to him assigned as the Minister of Agriculture now has.

SESSIONAL PAPER No. 15c

REGULATIONS GOVERNING THE INSPECTION OF MEATS, BY ORDERS IN COUNCIL, AUGUST 1, 1910, AND NOVEMBER 12, 1910.

1. In these regulations, unless the context otherwise requires,—

(*a*) 'the Act' means the 'Meat and Canned Foods Act';

(*b*) 'the Minister' means the Minister of Agriculture;

(*c*) 'the Department' means the Department of Agriculture;

(*d*) 'carcases' means the carcases of cattle, swine, sheep, goats, game and poultry;

(*e*) 'establishment' means any abattoir, packing-house, or other premises in which such animals are slaughtered, or in which any parts thereof or products thereof are prepared for food for export, or are stored for export;

(*f*) 'export' means export out of Canada or out of any province to any other province thereof;

(*g*) 'food' includes every article used for food or drink by man, and every ingredient intended for mixing with the food or drink of man for any purpose;

(*h*) 'inspector' means an inspector appointed under the Act;

(*i*) 'farmer' is a person whose recognized occupation is that of farming and who slaughters only such animals as are fed by him on his own premises;

(*j*) 'regulations' means regulations made under the provisions of the Act;

(*k*) 'portions' means the usual cuts, known as sides, quarters, shoulders, hams, bellies, &c., and also entire organs, such as tongues, livers, hearts, &c.;

(*l*) 'product' means anything prepared from carcases or portions;

(*m*) 'Canada Approved' means that carcases, portions, or edible products so marked have been inspected and found fit for food;

(*n*) 'Rejected' means that carcases or portions so marked may be rendered into lard or tallow;

(*o*) 'Condemned' means that carcases, portions, or products so marked are unfit for food, and shall be destroyed for food purposes;

(*p*) 'Inspection Legend' means the Crown, the words 'Canada Approved,' and the establishment number;

(*q*) 'package' means any can or other container in which carcases, portions, or products are packed, or any box, basket, or other receptacle used for their transportation, or anything in which products are wrapped up or bound together.

2. The following regulations, so far as they affect establishments, shall not apply to any establishment within the meaning of the Act other than those in which animals are slaughtered, or carcases, portions, or products thereof are prepared for food for export, or stored for export.

3. Every animal slaughtered, and all carcases, portions, or products thereof, prepared for food purposes in an establishment, shall be inspected and dealt with as required in these regulations.

4. The Minister may assign to each establishment under inspection a number which, together with the Crown and the words 'Canada Approved,' shall constitute the Inspection Legend for such establishment.

In the case of establishments having one or more branches, the Minister may assign to each branch establishment the same number, with the addition of a serial letter.

5. At establishments for which inspection is provided the Minister shall assign an inspector to take charge of the inspection, together with such assistants as he may deem necessary.

Inspectors shall, when in the performance of their duties, wear a numbered badge provided by the Department.

6. Establishments at which inspection is maintained shall furnish suitable accommodation for inspectors, such accommodation to include the exclusive use of a room, or rooms, suitable for office purposes, together with such fittings, sanitary or otherwise, as may be required for the proper conduct of the business of the Department or the accommodation of the inspectors stationed at such establishment.

The inspector in charge shall be kept fully informed by the management of all details regarding the actual operation of the establishment, and such operation will not be permitted under any circumstances without the knowledge of the inspector in charge, and either under his supervision or that of an inspector detailed by him for that purpose.

Every reasonable arrangement must be made as regards hours of work and other details, for the mutual convenience of the management and the officers of the Department.

This provision shall have special reference to small establishments situated in the same town, or in close proximity to each other, when two or more are under the supervision of the same inspector.

7. If the following sanitary conditions are not observed, inspectors are authorized to refuse inspection, and to forbid the removal from the establishment of meat and meat food products. Such action shall be reported immediately to the Veterinary Director General:—

(*a*) All establishments having inspection shall be suitably lighted and ventilated. All appliances, such as tables, trucks, vats, machines, containers, &c., must be kept clean and sanitary. All steps in the course of production shall be carried on carefully and with strict cleanliness, and under the supervision of an inspector;

(*b*) Rooms in which carcases, parts, or products thereof are placed or prepared, shall be scraped, scrubbed, whitewashed, or painted at such times in such manner as may be deemed advisable by the inspector in charge, and shall contain facilities for cleansing all equipment;

(*c*) The yards or pens belonging to or used in connection with any establishment shall be maintained in a clean, comfortable and sanitary condition, and shall not be used for the fattening of swine or other animals, nor shall any offal or other refuse from the establishment be utilized for feeding purposes;

(*d*) No carcases or parts thereof entering into the production of food shall be allowed to come in contact with anything that will contaminate or deteriorate them;

(*e*) Dressing rooms and lavatory accommodation shall be ample, sanitary and fully equipped, and shall be entirely apart from any room or compartment used for the storing or production of food;

(*f*) Employees of any establishment engaged in handling foods must be free from tuberculosis or other communicable diseases, and must observe such general rules as to sanitation as may be deemed necessary by the inspector in charge;

(*g*) Coverings used by employees to protect their clothing or persons shall be of material easily cleaned;

(*h*) Inspectors in charge of each establishment shall suggest to the manager or owner any needed change in sanitary conditions, and shall report weekly to the Veterinary Director General as to the general observance of this provision.

8. Inspectors must conform to any reasonable rules in force in any establishment in which they may be stationed, such as those prohibiting the use of tobacco on the premises, or other matters of a like nature properly coming under the control of the management. They must refrain from addressing employees except when absolutely necessary, and must at no time detain an employee or engage his attention by unnecessary conversation. Except in case of emergency, all complaints regarding employees, or the manner in which their work is performed, are to be made direct to the management and not to the employees.

Inspectors must constantly keep in mind the fact that the general conduct of the establishment is not in their hands but in that of the management, and that their official duties begin and end with the proper enforcement of the Act and the regulations.

9. Inspectors in charge of establishments shall furnish to the Veterinary Director General such daily and other reports as may be required.

Proprietors of establishments shall, upon request, furnish to the inspector in charge accurate information regarding receipts of stock, shipments and products on hand. They shall also furnish to the Veterinary Director General such information regarding processes of manufacture and other matters of a like nature as may by that officer be deemed reasonable and necessary in the public interest.

10. No animal which has entered the yards or pens of an establishment shall be removed therefrom unless permission in writing is granted by the inspector in charge.

Every animal about to be slaughtered shall be examined by a veterinary inspector in the yards or pens of the establishment prior to entering the killing floor. Establishments shall provide suitable facilities for separating healthy animals from those showing symptoms of or suspected of being affected with disease.

Only such animals as appear on inspection to be healthy shall be slaughtered at the regular kill.

Animals found to be diseased, or suspected of being diseased, shall be tagged in the left ear with a metal tag bearing the word 'Held,' and killed separately at the end of the regular kill.

Animals known as 'cripples' or 'downers' shall be tagged 'Held,' and may be slaughtered at the regular kill or otherwise, upon permission of the inspector in charge.

11. Inspectors shall make a thorough inspection, at the time of slaughter, of the carcass and all portions thereof. If the examination reveals no grounds for detaining or condemning the same, the inspector shall pass and mark such carcass or portions, as required in section 20.

If the inspector deems it necessary to hold any carcass or part thereof for further examination, he shall mark the same 'Held,' as required in section 14.

Should the re-inspection show the carcass or any part thereof to be in any way unfit for food, the inspector shall at the time of re-inspection mark such carcass or portion thereof with a 'Condemned' tag, as provided in section 16, and such carcass or portion shall forthwith be placed in the 'Condemned' room or tanked.

Carcases which may be rendered into lard or tallow shall be marked 'Rejected,' but only after all diseased parts have been removed, as provided in section 15.

No part of any carcass shall be removed or so placed as to prevent its ready identification, except with the authority of the inspector.

12. The entire carcass, as also the blood, of any animal affected with any of the following diseases or conditions is to be condemned and tanked, or otherwise disposed of as hereinafter provided:—

Anthrax.
Black Leg.
Pyæmia or Septicæmia.
Rabies.
Tetanus.
Malignant Catarrh.
Hog Cholera.
Swine Plague.
Texas Fever.
Parasitic ictero hematuria.
Inflammation (chronic or acute) of any of the following tissues: Lungs, pleura, intestines, peritoneum or uterus.

Traumatic Pericarditis.
Jaundice.
Uremia.
Abnormal Sexual Smell.
Parturition (carcases of animals having within ten days given birth to young, if showing any signs of septic infection).
Immaturity. Every animal under three weeks of age.
Tapeworm Cysts.—Cysticercus Bovis.
Cysticercus Celluosæ, except when the infestation is slight, in which case the carcass may be rejected and rendered into lard or tallow.
Emaciation or Anæmia.

(2) Tuberculosis.—Any carcass affected with tuberculosis which is emaciated, or in which the disease is generalized or is found in any of the deep-seated lymphatic glands, or in which the lesions wherever situated, are at all extensive, caseous, or purulent shall be condemned.

(*a*) When the lesions are collectively small in extent and calcified, or encysted and confined to the head, or to the head and the thoracic and abdominal viscera and their covering and lymphatic glands, the affected parts shall be removed and condemned (except the head, which shall be removed and may, if the inspector so decides, be rejected after removal and condemnation of the lesions); the remainder of the carcass, if well nourished and, in the judgment of the inspector, otherwise healthy, may be passed;

(*b*) Carcases affected as above, in which the lesions are small but are in a state of caseation, may, if the inspector sees fit, be rejected and rendered into lard or tallow, as provided in section 15 of these regulations, after the diseased portions have been removed and condemned, provided that where the lesions are such as to justify suspicion of extension the inspector shall examine the precrural, prescapular and popliteal glands, in addition to those in, or adjacent to the body cavities, and all carcases in which any of the deep-seated glands are found to be affected shall be condemned.

(3) Actinomycosis and Actinobacillosis.—The entire carcass affected with either of these diseases shall be condemned, except when the disease is confined to the seat of primary infection, or is otherwise definitely localized to the satisfaction of the inspector, and the carcass is well nourished and otherwise healthy. Should the head be affected, the whole head including the tongue, must be condemned. Any other organ in which the disease may be localized, must be condemned.

(4) Carcases or portions showing the following lesions or conditions shall be condemned:—

Abscesses.
Bruises.
Tumours.
Internal parasitic infection.

(5) Any abnormal condition not herein described must be dealt with as the judgment of the inspector directs.

(6) The presence at any establishment of an animal affected with or showing symptoms of any contagious or infectious disease, must be promptly reported to the Veterinary Director General by the inspector in charge, who shall also take immediate steps to ascertain the point of origin and address of former owner, and the place whence such animal was shipped, at the same time taking such further action under the provisions of the 'Animal Contagious Diseases Act' as he may deem necessary and advisable.

(7) Animals in an advanced stage of pregnancy shall be tagged 'Held.' They shall not be slaughtered at that time nor for ten days after parturition, but may be removed for stock or dairy purposes, provided they are not affected with and have not

been exposed to infectious or contagious disease. Before such animals are released, permission in writing shall be granted by the inspector in charge, and the 'Held' tag removed.

13. In every establishment there shall be set apart special rooms or compartments, one to be known as the 'Detention' room, in which all carcases, portions or products thereof, marked 'Held,' shall be placed until finally inspected or dealt with. The other room shall be known as the 'Condemned' room, in which shall be placed all carcases, portions or products thereof, marked 'Condemned.' Both rooms shall be well lighted, and so constructed and situated that they may be easily cleaned and disinfected. The doors shall be so fitted that they may be locked, with locks supplied by the Department, and the inspector shall retain charge of such locks and their keys.

If, after final inspection in the detention room of any carcass or portion marked 'Held,' the same is found fit for food, the 'Held' tag shall be removed, and the carcass, or portion, stamped as required in section 20. Any carcass or portion marked 'Held,' and which on final inspection is found to be unfit for food, shall be marked as provided in these regulations, and removed at once to the 'Condemned' room.

14. If at any time an inspector deems it necessary to further inspect any carcass, portion or product, he shall firmly attach thereto a white paper tag, numbered, and having thereon the word 'Held,' and immediately have the carcass, portion, or product so marked placed in the 'Detention' room. In all cases where the inspector making the first examination is not the same individual as the one making the final inspection, the former shall furnish to the latter a description of the animal or article, and the reason for which it was held, together with the number of the 'Held' tag. If, on final inspection or other investigation, the carcass, portion, or product, is found fit for food, the 'Held' tag shall be removed and the carcass, portion, or product marked with the Inspection Legend. Should inspection show the same to be unfit for food, it shall be immediately marked as provided, and removed to the 'Condemned' room for final disposition.

Carcases showing diseased or injured portions which cannot be readily removed at the time of slaughter, shall be marked 'Held,' and placed in the detention room until chilled, when the inspector may, if he sees fit, remove the affected portion and mark it 'Condemned,' and mark the remainder of the carcass 'Rejected' or 'Canada Approved' as he may decide.

15. Each carcass, or portion thereof, found on inspection or re-inspection to be unfit for ordinary food purposes, but not unfit to permit of its being rendered into lard or tallow, shall be marked with a numbered red paper tag having thereon the word 'Rejected.'

All carcases or portions marked 'Rejected' must be cooked by steam at a temperature not lower than 220° F., for not less than four hours.

16. Upon each carcass, portion or product thereof, found on inspection, re-inspection, or during the process of production, to be in any way unfit for food, there shall be placed a black paper tag bearing a number and the word 'Condemned,' and such carcases, portions, or products shall be immediately placed in the 'Condemned' room, or tanked as provided for in the following section.

All animals found dead, or in a dying condition, upon the premises of any establishment, shall be tagged in the right ear, by an inspector, with a metal tag bearing a number and the word 'Condemned.'

Such tag shall under no circumstances be removed except by the inspector supervising the final disposition of the carcass, portion, or product so marked, who shall report as to its disposition.

17. Every establishment having inspection shall be equipped with facilities satisfactory to the Minister for the tanking of all diseased carcases, portions, or products. They must be so placed or operated as to cause no odours or fumes to pervade any room wherein carcases or portions thereof are prepared or stored for food purposes.

All carcases, portions, or products which have been marked 'Condemned,' shall be tanked or otherwise disposed of as hereinafter provided, under the supervision of an inspector. Tanks shall be entirely separate and detached from any pipe or conduit leading to or from any tank, pipe, or conduit in which edible products are prepared, conveyed or stored, and shall be sealed, and the seals broken only by an inspector, who shall see that the process of tanking is sufficiently thorough to render impossible the utilization of any of the condemned carcases, parts, or products in any way for human food.

As a further precaution, with the above object in view, the Minister may authorize the use by inspectors of any colouring or other matter which may be considered suitable.

Establishments which, on being first brought under inspection, do not possess the necessary equipment for tanking, will be granted reasonable time in which to provide the same. Until then, inspectors will slash carcases, or portions thereof, in such a way as to render them unsaleable and easily identified, and will, in addition, be required to supervise their burning or proper burial.

Notwithstanding anything in this section, inspectors in charge shall at all times have the right, either for official or for scientific or educational purposes, to reserve any carcass, or any portion or product thereof, which has been condemned on account of disease or other abnormal condition, as also to retain, for any of the above purposes, specimens from any carcass, portion, or product which has been rejected.

Any inspector reserving any carcass, or any portion or product thereof, as above provided, must immediately report his action in so doing to the Veterinary Director General.

18. No carcases or portions thereof, other than those bearing the Inspection Legend and which have been inspected and found fit for food, shall be allowed to enter any establishment at which inspection is maintained, except as hereinafter provided:—

(*a*) Carcases, portions, or products thereof shipped from foreign countries, if properly certified, whether by marking or otherwise, to have passed government inspection to the satisfaction of the Minister before leaving the country of origin; but such carcases, portions, or products shall be re-inspected and dealt with accordingly;

(*b*) Dressed carcases which, except in the case of game or poultry, must have the head, heart, lungs and liver held by their natural attachments; such carcases to be inspected before entering the establishment, and, if found fit for food to be marked with the Inspection Legend; if found to be diseased, or otherwise unfit for food, to be dealt with as provided in the regulations;

(*c*) Unmarked carcases or portions, shipped from another establishment at which inspection is maintained, under the provisions of section 26 of these regulations;

(*d*) Manufactured sausage casings if, upon inspection, they are found to be healthy and fit for human food;

(*e*) Carcases of sheep or lambs of any age, or of dressed calves not more than three months old, from which the head has been removed, provided that the heart, lungs and liver are held by their natural attachments;

(*f*) Carcases, portions or products which do not come within the classes already mentioned in this section, shall be permitted entrance to an establishment only in accordance with such special directions or instructions as may be issued by the Minister, but shall in no case be received unless the inspector in charge has been notified;

(*g*) Carcases, portions, or products thereof shall be permitted to enter establishments only through such doors, passages, or other means of entrance as are designated for that purpose, and at such times and under such conditions as may be approved by the inspector.

19. Inspectors may at any time re-inspect any carcass, portion, or product thereof which has been prepared, stored in, or returned to any establishment, or is about to be shipped therefrom. If upon such re-inspection any carcases, portion, or product is found to be unfit for food, by reason of adulteration or deterioration, or any other cause, it shall be dealt with and disposed of as provided in these regulations.

20. Except when shipped direct to an establishment under inspection, as provided in section 26, every carcass, portion, or product found, upon inspection or re-inspection, to be fit for food, which is to leave the establishment, shall have a stamp or mark showing the Inspection Legend. In the case of such portions or products as cannot be individually marked, the marking shall be placed on the case, package, or container, in such manner as is prescribed in section 25 of these regulations.

21. Sausages, canned meats, and portions intended for cure, shall be prepared only from carcases or portions which have been marked with the Inspection Legend, or which have been admitted to an establishment in accordance with these regulations, and which on re-inspection are found fit for food. Their preparation and packing shall be supervised by an inspector, who shall not allow any fixture, appliance, or receptacle to be used in the production of food products unless the same is clean and sanitary.

No food product shall contain any deleterious substance, drug, dye or preservative.

With the object of preventing the use of deleterious substances, the inspector shall, as often as deemed advisable, procure samples of the preservatives used, as also of the different food products during their preparation, or after they have been prepared, and shall submit them without delay to the Department for analysis.

Inspectors in charge will be furnished by the Department with the names of harmless preservatives and dyes which may be used; the addition of others will prevent the approval of the product.

22. The proprietor or manager of any establishment shall, upon request of the inspector in charge, furnish to him free of charge any sample or samples of preservatives, food products, or any ingredient used in the preparation of foods. Samples so obtained must be sealed, labelled and marked with a description of the same, together with the inspector's name, and the date, and forwarded at once to the Veterinary Director General.

23. All carcases, portions, or products of carcases, prepared for food and packed in cans or similar receptacles, or in any package, shall be subject to inspection during the whole course of preparation and packing; and all such cans or receptacles shall be marked, unless otherwise ordered by the Governor in Council, with:—

(*a*) The initials of the Christian names, the full surname and the address, or, in the case of a firm or corporation, the firm or corporate name and address, of the packer, or of the first dealer obtaining them direct from the packer who sells or offers the said articles for sale; and such dealer shall, upon the request of an inspector appointed under the Act, disclose the name of the packer of such article.

(*b*) A true and correct description of the contents of the package.

These requirements shall be embodied on a trade label, stencil, or lithographed design, which shall be of a size reasonably proportionate to the size of the package, duly approved by the Minister, having thereon the Inspection Legend in addition to the name and address of the packer or of the first dealer, as provided above, and description of the contents. All letters and figures in the Inspection Legend shall be of a size reasonably proportionate to the general lettering of the label, stencil, or lithographed design.

No can, receptacle, or package subject to inspection shall be marked with anything which falsely represents the quantity, weight, contents, or date when contents of same were packed.

Owners or managers of establishments shall supply to the Veterinary Director General, for filing purposes, a copy of every label, stencil, or lithographed design used in the establishment.

24. All labels, cans, receptacles, or containers, upon which the name and address of the packer, or first dealer, and the Inspection Legend are stencilled, or otherwise

25 When carcases, portions or products are shipped from any establishment in embodied in a permanent manner, shall be under the custody of an inspector.
any package, case, or covering concealing wholly or partially the contents, the package, case or covering shall be marked in accordance with the requirements of section 23 of these regulations, unless such shipment is being forwarded direct to an establishment under inspection, as provided in section 26, and is covered by a certificate issued by an inspector of the Department.

Owners or managers of establishments shall supply all necessary help to affix labels and stamps under the supervision of an inspector.

26. Carcases, portions, or products, intended for food purposes, may be permitted to leave an establishment under inspection without having been marked as provided in section 20 of these regulations only when such carcases, portions, or products are consigned direct to another establishment under inspection. Every such shipment must be accompanied by a certificate from the inspector in charge of the establishment of origin, which certificate shall set forth fully the number and nature of the carcases, portions, or products which it purports to cover, as also the name of the consignee. This certificate shall be made out in triplicate, the original and duplicate to be handed to the common carrier, if any, accepting the shipment, the original to be filed and the duplicate forwarded to the Veterinary Director General, by the common carrier; in the case of shipments conveyed by wagon or other vehicle from one establishment to another establishment under inspection, the original shall be filed by the inspector in charge of the establishment forwarding the shipment and the duplicate forwarded by him to the Veterinary Director General. The triplicate in each case shall be sent by the inspector in charge of the establishment in which the shipment originated to the inspector in charge of that to which the consignment was made.

In the case of carload shipments, the certificate shall also show the car number and initials.

All cars, wagons, or other containers used for the conveyance of unmarked meats, as above provided, must be sealed by an inspector in the establishment of origin, and such seals shall be broken only by an inspector.

27. Except as provided in section 37 of these regulations, no clearance shall be granted to any vessel carrying any carcases, portions, or products thereof, other than ship stores, out of the Dominion, unless said carcases, portions, or products have been duly marked with the Inspection Legend.

As evidence that this requirement and the provisions of the Act have been complied with, it shall be deemed sufficient if a certificate signed by the inspector in charge of the establishment in which the shipment originated, or by the shipper, has been filed with the Customs authorities by the master, owner, or agent of the vessel, to the effect that the carcases, portions, or products have been duly inspected and marked according to the provisions of the Act; such certificate to set forth also the number of carcases, portions, or packages, weight, description, shipping marks, shipper, consignee and destination.

On request of the owner of an establishment, the inspector in charge shall issue a certificate in triplicate covering any carcases, portions, or products thereof, which have been inspected and marked with the Inspection Legend, and which are to be exported out of the Dominion. Such certificates shall be issued in serial numbers. The original, duplicate and triplicate shall be given to the shipper, who shall hand them to the transportation company; the original to be attached to the bill of lading accompanying the shipment for the information of the Customs authorities; the

duplicate kept on file by the transportation company accepting the shipment; and the triplicate forwarded by the transportation company to the Veterinary Director General.

28. When any carcass, portion or product thereof, is offered for transportation, for export, the person, firm, or corporation shipping the same shall fill out a certificate in duplicate in one of the following described forms, (unless the shipment is covered by a certificate signed by an inspector, as provided for in sections 26 and 27), which shall be delivered to the common carrier or other person to whom such shipment is offered; and no common carrier or other person shall transport or accept for transportation for export any carcass, portion or product thereof until such certificate in duplicate has been duly made and signed by the shipper or an inspector.

(1) To be used when shipment consists of duly inspected and marked carcases, or parts or edible products thereof:—

Station..... Date.....

Name and address of shipper.....

Name and address of consignee.....

Name of carrier.....

I hereby certify that the following described shipment consists of carcases, parts, or products thereof, which have been duly inspected and marked with the Inspection Legend according to the 'Meat and Canned Foods Act,' and that the articles comprising it have not been tampered with or treated, since they were so marked, in any way other than is allowed by the said Act or the regulations made thereunder, and that they are at this date wholesome and fit for human food.

No. of packages.....

Weight.....

Description.....

Shipping marks.....

.....

Signature of Shipper.

(2) To be used when shipment is made by a farmer:—

Station..... Date.....

Name and address of shipper.....

Name and address of consignee.....

Name of carrier.....

I hereby certify that I am a farmer, and that the following described carcases or parts thereof are from animals owned by me and slaughtered upon my own premises, and that they are at this date wholesome and fit for human food.

No. of carcases or parts.....

Description.....

.....

Signature of Shipper.

(3) To be used when the shipment is of foreign origin, and consists of inspected and marked carcases, portions, or products thereof, which have passed a government inspection in the country of origin satisfactory to the Minister.

Station..... Date.....

Name and address of shipper.....

Name and address of consignee.....

Name of carrier.....

I hereby certify that the following described shipment consists of carcases, parts or products thereof which have been duly inspected in.....and

(Country of origin.)

are marked.....

(Markings.)

which is the official export marking of that country, certifying that they have passed

government inspection, and that they are at this date, to the best of my knowledge and belief, sound, wholesome and fit for human food.

No. of packages.. .. ..
Weight.. .. ..
Description.. .. ..
Shipping marks.. .. ..
.. ..

Signature of Shipper.

29. All certificates, other than those issued by inspectors, as provided for in sections 26 and 27, shall be made in duplicate; the original shall be filed by the initial carrier and kept on file for at least one year, and the duplicate shall be immediately forwarded by him to the Veterinary Director General.

30. Way-bills, transfer bills, running slips, or conductor's cards, accompanying any shipment of carcases, portions, or products thereof, shall have stamped thereon, or attached thereto, the following certificate:—

(*a*) In case of duly inspected and marked carcases, parts, or edible products:—

'Shipment inspected and marked "Canada Approved," as evidenced by shipper's certificate on file with initial carrier.'

Railroad company.. .. ..
.. ..

Agent.

(*b*) In case of shipments made by farmers:—

'Uninspected, as evidenced by shipper's certificate on file with initial carrier.'

Railroad company.. .. ..
.. ..

Agent.

(*c*) In case of shipments of foreign origin:—

'Shipment inspected and marked in.. .. ..
(Country of origin.)
as evidenced by shipper's certificate on file with initial carrier.'

Railroad company.. .. ..
.. ..

Agent.

(*d*) In case of shipments inspected but not marked:—

'Shipment inspected but unmarked, as evidenced by inspector's certificate on file with the initial carrier.'

Railroad company.. .. ..
.. ..

Agent.

31. Nothing in sections 27 or 28 shall apply to sausage casings, carcases or portions of game or dressed poultry, or to pork and beans, or to mincemeat, which, may, unless otherwise ordered, be accepted for transportation, for export, without certification or marking.

32. Notwithstanding anything in these regulations, common carriers may accept, for export, without certification, any animal product not intended for food purposes, provided that each package, cask, or other container is plainly and permanently marked with the following words: 'Inedible, Unfit for food.' Such marking must be distinct and in letters not less than one inch in length.

33. The presence of the Inspection Legend on any carcass, portion, or product thereof shall indicate only that the article so marked was at the time of marking sound, healthy and fit for food, and that, in the case of products, the process of manufacture was conducted under proper sanitary conditions.

34. The words 'Canada Approved' and the Crown, with or without any establishment number, are hereby declared to be a government mark.

35. No person, not being an inspector duly appointed under the Act, or duly authorized by an inspector so appointed, shall apply the Inspection Legend, or the words 'Canada Approved,' or any word or words of like meaning or effect, to any carcass, portion or product thereof, or to any article of food, or to any package containing the same.

36. After the contents of any package or covering bearing the Inspection Legend have been removed, no further use of the Legend shall be made, but it shall forthwith be destroyed.

37. The provisions of these regulations with regard to export shall not apply to the shipment of carcases, portions, or products from any one of the three provinces of Nova Scotia, New Brunswick and Prince Edward Island to any other of the said three provinces, or to Newfoundland, St. Pierre and Miquelon, or the Magdalen Islands.

38. Collectors of Customs throughout Canada shall see that the various exigencies and requirements of these regulations, or any ministerial or other order made thereunder, are fulfilled before granting any permit which requires, before it is given, any act to be performed or any inspection or other proceeding to be made or taken, and they shall see that the prohibitions prescribed and rules established by these regulations as hereinbefore mentioned, and the instructions which may be issued by the Minister, are obeyed, and, in case of any infraction of the provisions of these regulations, or any of them, taking place, they shall report at once to the Minister the nature and extent of such infraction.

REGULATIONS GOVERNING THE INSPECTION OF PRESERVED FRUITS, VEGETABLES AND MILK.

(By Order in Council, July 6th, 1910).

1. In these regulations, unless the context otherwise requires,—

(*a*) 'the Act' means the Meat and Canned Foods Act;

(*b*) 'the Minister' means the Minister of Agriculture;

(*c*) 'the Department' means the Department of Agriculture;

(*d*) 'establishment' means any factory, cannery, evaporating plant, or other place or premises in which fruits, vegetables, or fruit or vegetable products are processed, canned, bottled, evaporated, dried, or otherwise preserved for food for export, or in which milk is condensed, evaporated, or otherwise preserved for food for export, or in which any of the articles aforementioned are stored for export;

(*e*) 'export' means export out of Canada, or out of any province to any other province thereof;

(*f*) 'food' includes every article used for food or drink by man, and every ingredient intended for mixing with the food or drink of man for any purpose;

(*g*) 'inspector' means an inspector appointed under the Act;

(*h*) 'regulations' means these regulations made under the provisions of the Act;

(*i*) 'products' means anything prepared from fruit or vegetables, or any condensed or evaporated milk;

(*j*) 'container' means any receptacle made of wood, glass, earthenware, or metallic substance, whether hermetically sealed or intended to be so sealed, or otherwise;

(*k*) 'package' means any can or other container in which products are packed, or any box, basket, or other receptacle used for their transportation, or anything in which products are wrapped up or bound together;

2. These regulations shall apply to all establishments within the meaning of paragraph (*d*) of section 1 hereof.

3. The Minister may, as provided in the Act, appoint inspectors who shall, from time to time, visit each establishment for the purpose of seeing that the provisions of the Act and of these regulations are duly observed and complied with.

4. Inspectors shall, in the performance of their official duties, wear a numbered badge provided by the department.

5. Inspectors shall furnish to the Veterinary Director General full and detailed reports of all inspections made by them, and of such other matters as may, in the public interest, be deemed necessary or advisable.

6. The following sanitary conditions shall be observed and maintained in all establishments:—

(*a*) All establishments shall be suitably lighted and ventilated;

(*b*) All appliances, such as tables, trucks, vats, machines, kettles, containers, &c., shall be kept clean and sanitary;

(*c*) All operations in connection with the preparation or packing of products shall be carried on carefully, and with strict cleanliness;

(*d*) Rooms in which articles intended for food are stored, processed, or otherwise prepared, shall be scraped, scrubbed, whitewashed, painted, or otherwise dealt with at such times as may be deemed necessary by an inspector, and shall contain facilities for cleaning all equipment;

(*e*) Employees of any establishment engaged in handling articles intended for food must be free from tuberculosis or other communicable disease, and must observe such general sanitary rules as may be deemed necessary by the inspector;

(*f*) No articles entering into production of food shall be allowed to come in contact with anything that will contaminate or deteriorate them;

(*g*) Coverings used by employees to protect their clothing or persons shall be of material easily cleaned, and shall be kept reasonably clean;

(*h*) Dressing rooms and lavatory accommodation shall be ample, sanitary and fully equipped, and shall be entirely apart from any room or compartment used for the storing or production of food or of articles intended for food;

(*i*) All yards, outhouses, or other premises belonging to or used in connection with any establishment shall be maintained in a clean and sanitary condition, and shall not be used for the emptying or storing of refuse;

(*j*) The drainage, if any, in connection with establishments shall be ample, and kept in proper working order;

(*k*) No lavatory, sink, or cesspool shall be so situated or maintained as to permit any odours or fumes therefrom to pervade any room where food or articles intended for food are prepared or stored.

7. All fruits, vegetables, milk, or other articles used in any establishment shall be sound, wholesome, and in every way fit for food.

8. All fruits, vegetables, milk, or other articles intended to be used for food, found by an inspector in any establishment, whether in course of preparation or after they have been prepared, to be decomposed, diseased, or in any way unfit for food purposes, shall be confiscated by the inspector and destroyed under his supervision.

9. No food or food product shall contain any deleterious drug, dye, or preservative, or other foreign substance injurious to health.

(2) Pending the issue by the Inland Revenue Department of its regulations relating to Food Standards, no drug, dye, preservative, or seasoning which has not been approved in writing by the Veterinary Director General, shall be used in the preparation or packing of any food product.

(3) Proprietors of establishments will be furnished by the Veterinary Director General with a list of approved dyes, drugs and preservatives. Any proprietor of an establishment may also submit to the Veterinary Director General for his approval any dye, drug, preservative, or seasoning which he may desire to use, and in the event of any such preparation being approved, its use shall be permitted.

10. With the object of preventing the use of deleterious substances, inspectors shall, as often as deemed advisable, procure samples of the preservatives used, as also of the different food products during their preparation, or after the same have been prepared, and shall submit them without delay to the Veterinary Director General.

The proprietor of any establishment shall, upon request of an inspector, furnish to him free of charge any sample or samples of foods or food products, or of any preservative, seasoning, or other ingredient used in the preparation of foods. Samples so obtained must be sealed, labelled and marked with a description of the same, together with the inspector's name and the date, and forwarded at once to the Veterinary Director General.

11. Containers in which vegetables, milk, or other articles intended for food are finally placed, shall be clean and sanitary, and, if previously used, must be thoroughly sterilized immediately prior to being filled.

12. Containers or packages in which fruits, vegetables, milk, or other articles prepared for food in any establishment are placed shall be marked, unless otherwise ordered by the Governor in Council, with:—

(*a*) The initials of the christian names, the full surname, and the address, or, in the case of a firm or corporation, the firm or corporate name and address of the packer, or of the first dealer obtaining it direct from the packer who sells or offers the same for sale. Such dealer shall, upon the request of the inspector appointed under this Act, disclose the name of the packer of such articles;

(*b*) A true and correct description of the contents of the package.

These requirements shall be embodied upon a trade label, stencil, or lithographed design, which shall be of a size reasonably proportionate to the size of the container or package, having thereon, as provided above, the name and address of the packer or of the first dealer, and a true and correct description of the contents.

13. No container or package shall bear any label or mark of any kind which falsely represents the nature or quantity or weight of its contents, or the date when such contents were packed.

14. No person shall offer for export or shall export any fruits or vegetables, or fruit or vegetable products, canned, bottled, evaporated, dried, or otherwise preserved for food, or any milk, condensed, evaporated, or otherwise preserved for food, in any establishment, unless the requirements of section 12 of these regulations as regards labelling have been complied with in respect to such articles.

APPENDIX No. XIX.

S. F. Tolmie, V.S.

Representative of the Live Stock Branch in British Columbia.

Victoria, B.C., March 31, 1911.

Sir,—I have the honour to submit the following report of the work of the Live Stock Commissioner's Branch, and conditions prevailing in connection with the live stock industry in British Columbia, for the year ending March 31, 1911.

The work in connection with the Canadian Record of Performance has progressed steadily, and an ever increasing interest and appreciation of the work is being shown by dairymen. During the year a number of new herds have been entered in the test, and it is quite possible that they will be greatly increased next year. It is very gratifying to note that some very satisfactory records are being made by British Columbia cows.

As usual three judges were supplied by the Live Stock Commissioner's Branch to the Provincial Department of Agriculture and they did excellent work. The furnishing of reliable judges to the fall fairs is much appreciated by the management of the Exhibition Associations.

HORSES.

In connection with the horse industry a marked increase in draught horses is noticeable, while, with the exception of the Coast Districts, comparatively few light horses are being bred.

A splendid work has been accomplished by the Horse Show Associations at the coast in creating an interest in fine carriage, road and saddle horses. Many valuable animals of these kinds have been brought to the province.

Under range conditions in the interior very few light horses are kept, with the result that saddle horses of good quality, for which there is always good demand, are not so numerous as in past years. The great demand for heavy horses at very remunerative prices has given a great stimulus to the breeding of these animals and many valuable heavy horses of both sexes have been brought to the province during the year. Several good teams of heavy draughters have sold in the coast market at $1,200, light draughters bringing from $600 per team up. The value of the horse stock in the province during the year is estimated at about $600,000, while the value of horses brought in from outside sources is placed at a little more, showing that the market is not nearly supplied at home.

BEEF CATTLE.

The breeding of beef cattle is practically altogether confined to the interior districts. Here in spite of the increased prices of late years, the business of growing cattle under range conditions is not as remunerative as it used to be, owing to the gradual eating out of the ranges, due to overstocking and failure to allow the grass a chance to recuperate. In many cases also proper provision for winter feed is not made, so that serious losses are experienced in hard winters. The consumption of beef has greatly increased, and hundreds of carloads of Alberta cattle are now required in addition to the home product to supply the demand.

Pure-bred bulls are used on many of the ranches, but the full benefits of this introduction of improved blood cannot be realized without ample provision for winter feeding of the growing and breeding stock. Generally speaking, I think larger net profits would be obtained by keeping a smaller number of animals and improving their quality and by making ample provisions of feed, then practically no winter losses would be experienced and the product would be greatly increased in size. Beef prices have ranged during the year from 4 to 6½ cents per lb. at point of shipment.

DAIRYING.

Dairying has made rapid strides, but here also a notable change is to be seen. Owing to the increased demand for milk in the cities and improved transportation facilities, many producers who were cream shippers are now selling whole milk to the cities and condensaries. The great increase in value of lands in some districts has also had the effect of reducing the size of the holdings and the keeping of fewer cows. A large number of pure-bred dairy cattle have been brought into the province during the year, and this with the interest being shown in the Canadian Record of Performance and the revival of interest in cow-test associations, should result in a marked increase in the net profits of the dairymen.

It is estimated that the output of British Columbia dairies for the year amounted to nearly $1,000,000. This should be greatly increased as new districts are opened up.

THE SHEEP INDUSTRY.

The sheep industry shows but little change. Good prices prevail and an excellent market, in fact a very large proportion of the mutton consumed here is grown in the State of Washington under conditions which are very similar to what we have here. In addition to this, heavy shipments of Australian mutton are used. Still the farmers seem to prefer the other lines of the live stock industry. No doubt the depredations of vagrant dogs near the cities and wild animals in the more remote districts, have deterrent effects on the increase of sheep-raising. Sheep averaged 6-7 cents per lb. and wool about 12 cents per lb. for the year. It is estimated that there are not more than 30,000 sheep in the province.

SWINE GROWING.

Swine growing has been given a great impetus by the excellent values which have prevailed. Prices have been higher than at any time in this province since the construction of the Canadian Pacific Railway—dressed hogs selling at 14 cents. The quality of the hogs here is excellent. The breeders do not aim to produce the extreme bacon type, but rather a medium long, rapidly-maturing animal that will make first-class block pork at seven months.

The great demand for whole milk in the cities will have a tendency to reduce the number of hogs in some of the dairy districts that are favourably situated to handle the milk trade. Heavy importations of fresh and cured pork are necessary to supply the demand.

An increasing interest is being shown in all lines of pure-bred stock breeding with the exception of beef cattle. The cattle ranchers still import the majority of their bulls for use on their ranges.

The legislation introduced by the Provincial Department of Agriculture for the eradication of tuberculosis up to the present appears to be operating very well and a large number of herds have been tested.

I have the honour to be, sir,
Your obedient servant,

S. F. TOLMIE.

Dr. J. G. Rutherford, C.M.G.,
Live Stock Commissioner.

APPENDIX No. XX.

J. A. Couture, D.V.S.

Representative of the Live Stock Branch, in the Province of Quebec.

Quebec, March 31, 1911.

Sir,—I have the honour to send you a report of the work in which I have been engaged during the fiscal year ending March 31, 1911, in connection with my official position as representative of the Live Stock Branch in the province of Quebec.

It is my duty as representative of the Live Stock Branch to act as Secretary to the General Stock Breeders' Association, which is a federation of the Sheep and Swine Breeders' Societies (both of which are sections of the National Sheep and Swine Breeders' Association) and the French Canadian Horse and Cattle Breeders' Societies.

Much time is taken up by the correspondence with the members of these societies, who look to their secretary for all kind of information and advice on all kind of subjects. Nearly 5,000 letters (4,832) have been sent from this office during the last fiscal year in connection with my position as representative of the Live Stock Branch.

Then there are the meetings of the Boards of Management of the various associations, besides the general annual meetings of the same which have to be prepared and attended to. The publishing of the proceedings of these meetings in the newspapers, the writing up in both languages of the annual reports, the correction of the proofs, and the distribution of these reports to the members take up a great deal of time and require a great deal of work.

I may also mention that I make it a point to send articles to the press, French and English, upon all subjects which may be instructive to the breeders of live stock.

FRENCH CANADIAN HORSE SHOW.

It was my duty as secretary to the French Canadian Horse Breeders' Association to organize the annual French Canadian Horse Show, which was held last year at Three Rivers. It was very successful, there being exhibited 14 stallions, 26 mares 3 years old and over, 7 two years old, 6 yearlings and 8 colts. The Dominion Department of Agriculture had granted the sum of $750 to be distributed as premiums for the best horses, either males or females. In addition to this the Exhibition Company gave $890, the French Canadian Horse Breeders' Association gave $50, and Mr. A. Denis $20, bringing up the total amount offered in prizes to $1,710.

The classes for 3-year-old mares and for brood mares with foals at foot were exceptionally good. Nothing better could be desired for breeding purposes. On the whole the stallion class was very good.

Out of the $750 given by the Department, $500, divided into seven premiums, were for stallions, and $250, divided into fifteen permiums, were for mares. As the object of these premiums is to prevent the exportation of the best stallions and mares, the condition was laid down that the horses, to which they would be granted, should be used for breeding and should remain in the province until the end of the season of 1911, and that one-half of the prize money would be payable only at the end of that season.

Below will be found a list of the prize winners in the special government class.—

Stallions, 3 years old and over.

1st	prize,	$100.	Primrose, 325; Dr. P. P. Gatien, St. Hyacinthe.
2nd	"	90.	Bael, 348; Donat Chassé, St. Zéphirin.
3rd	"	80.	Aiglon, 714; L. P. Sylvestre, St. Theodore d'Acton.
4th	"	70.	Lion d'Or, 380; A. Lemire, Yamachiche.
5th	"	60.	Prince de Ste. Ursule, 72; E. Béland, Ste. Ursule.
6th	"	55.	Brio, 62; F. Meunier, St. Liboire.
7th	"	50.	Black Joe, 664; Jos. Gagnon, Ste. Anne (Chicoutimi).

Mares, 3 years old and over.

1st	prize,	$40.	Camilla, 363; Ad. Fecteau, St. Antoine (Verchères).
2nd	"	35.	Lady, 334; J. Bte. Phaneuf, St. Denis (Richelieu).
3rd	"	30.	Belle Alezane, 699; A. Cabana, St. Cuthbert.
4th	"	25.	Josephine, 162; Jos. Laporte, St. Norbert (Berthier).
5th	"	20.	Pierrette, 656; P. Lavallée, St. Norbert (Berthier).
6th	"	15.	Black Princess, 693; P. Lavallée, St. Norbert (Berthier).
7th	"	14.	Cabanette, 226; A. Cabana, St. Cuthbert.
8th	"	13.	Dame Chicot, 350; Ones. Courchesne, St. Cuthbert.
9th	"	12.	Princess Chicot, 762; Ones. Courchesne, St. Cuthbert.
10th	"	11.	Genevieve, 176; Trefflé St. Amand, Ste. Genevieve.
11th	"	10.	Maggie, 421; Omer Provencher, Nicolet.
12th	"	9.	Corneille, 332; J. A. Lavallée, Berthierville.
13th	"	8.	Docile, 791; P. Brouillette, Ste. Anne de la Pèrade.
14th	"	7.	Fanny de St. Léon, 815; U. Légris, St. Léon.
15th	"	6.	Nelly de St. Maurice, 153; J. O. Dugré, Pte. du Lac.

While on that subject, I might say that a plan is being prepared to gather as many as possible of the best French Canadian mares in the districts of St. Hyacinthe, St. John's and Berthier, so as to make those districts centres for the breeding of that class of horses. At the same time efforts are being made to secure five or six stallions, of the same type as the mares and of the best quality, to be used as sires alternately in those districts so as to definitely fix that type of horse. It is hoped that the project will take a practical form within a short time.

FIRST PUBLIC SALE OF SHEEP AND SWINE-BREEDING STOCK BY THE SHEEP AND SWINE BREEDERS' ASSOCIATIONS.

It was agreed by the Sheep and Swine Breeders' Associations that the best means to promote the improvement of both sheep and swine in this province would be to make public sale of breeding stock of those animals, thus placing within the reach of all farmers, once or twice a year, choice animals for breeding purposes at a moderate price. The Associations were of opinion that if these sales were made for several years the number of sheep and swine could be increased tenfold and their value greatly augmented.

With that end in view it was decided at the last general meeting of the Sheep and Swine Breeders' Associations to have an auction sale of breeding stock.

On the 21st April the directors of both societies headed by Hon. N. Garneau, and accompanied by several members of the Quebec Legislature, waited on Hon. Mr. Caron, Minister of Agriculture of the Province of Quebec, and requested the co-operation of his department for the sales of those animals.

After having considered the matter fully the Minister agreed to become responsible for the deficit, if there should be one, provided the federal government would pay the cost of transporting the animals. That guarantee enabled the society to procure the necessary funds for effecting the purchases and covering the expenses to the date of the sales.

The sales took place at St. Hyacinthe on the 11th October, and at Quebec on the 17th October. Following is a list of the animals offered for sale.

At Quebec—

Sheep.	Males.	Females.	Total.
Cotswolds	3	4	7
Leicesters	5	7	12
Lincolns	2	3	5
Hampshires	1	2	3
Shropshires	2	2	4
Oxfords	3	3	6
Total	16	21	37

Swine.	Males.	Females.	Total.
Yorkshires	2	5	7
Chesters	2	4	6
Berkshires	2	4	6
Tamworths	1	1	2
Total	7	14	21

At St. Hyacinthe—

Sheep.	Males.	Females.	Total.
Cotswolds	5	10	15
Leicesters	9	12	21
Lincolns	5	6	11
Hampshires	2	5	7
Shropshires	7	10	17
Oxfords	7	8	15
Total	35	51	86

Swine.	Males.	Females.	Total.
Yorkshires	5	12	17
Chesters	2	10	12
Berkshires	2	10	12
Tamworths	1	1	2
Total	10	33	43

From a financial point of view the result was very satisfactory, the amount realized by the sales covering the cost of the purchase of the animals, less about $300. The travelling expenses of the buyers, those for transportation of the animals, attendance and feeding for about three weeks, organizing of the sales, the cost forwarding to the buyers bring this deficit up to $2,080.52. From this sum must be deducted $257.95 for transportation which the federal Department of Agriculture had assumed, and $62.96 tha was paid by the association leaving the sum of $1,756.61 to be paid by the Department of Agriculture of the province.

The Societies put up for sale 123 sheep and 64 swine, viz.:—

Sheep.	Costing.	Sold for.	Loss.	Gain.
33 Leicesters	$ 802	$ 749	$ 53	
16 Lincolns	360	247	113	
22 Cotswolds	560	571	...	$11
21 Oxfords	430	448	...	18
21 Shropshires	395	364	31	
10 Hampshires	290	212	78	
123	$2,837	$2,591	$275	$29

Swine.	Costing	Sold for.	Loss.	Gain.
25 Yorkshires	$ 800	$ 664	$136	
18 Chesters	505	605	....	$100
18 Berkshires	537	510	27	
4 Tamworths	125	123	2	
64	$1,967	$1,902	$165	$100

The sheep cost $23.06 on average; they brought $21.06. The swine cost $30.26 on average; they brought $29.26.

The results of the sales are as follows:—

At Quebec—

37 sheep at an average of $18 50. Loss, $4 56 per head.
21 swine " 36 28. Profit, 6 30 "

At St. Hyacinthe—

86 sheep " $22 18. Loss, $0 88 "
43 swine " 26 51. " 3 75 "

Following is a statement of receipts and expenditure in connection with the whole transaction:—

Expenditure.		*Receipts.*	
Purchase of stock	$4,804 00	Proceeds of the sales	$4,490 00
Transportation	257 95	Paid by Quebec government	1,759 61
Travelling expenses, feed of animals, sales and shipment of animals	1,392 11	" by Federal government.	257 95
Registration	63 50	" by Breeders' Association.	62 96
Sundries	62 96		
	$6,570 52		$6,570 52

The purchases were made by Messrs. L. Lavallée and A. Denis, delegates of the Associations. Mr. H. S. Arkell, of the Dominion Live Stock Branch, accompanied the purchasers at the request of the Quebec Department of Agriculture and supervised the whole operation.

This first sale of breeding stock has been satisfactory. The animals were of good quality. They were scattered throughout the province and there is reason to hope that much good will result. The Association intends to make such a sale every year, and they contemplate to gradually extend them by adding cattle and horses.

Arrangements are being made with the Quebec government to make a sale of 150 sheep and 100 swine next fall.

In the course of the winter I was requested to help to prepare the series of lectures or conferences to be given by the Live Stock Branch in the province of Quebec. Previous to undertaking the work a letter was sent to all of the officers and to some of the prominent members of the several Stock Breeders' Associations, in order to find out what subjects should preferably and more advantageously be dealt with at the meetings.

The answers to that letter proved very useful in preparing the programme which was approved by the Minister, but which it is unnecessary to include in this report since it will surely be found elsewhere. However it may be mentioned that one delegate of each series of lectures was instructed to urge upon the farmers the necessity for them to keep a flock of sheep on their farms, and that another delegate was to insist upon the necessity of abandoning the present haphazard way of breeding horses and to resort to a more rational mode. Arrangements were also made to have at certain points a judging class for live stock.

The Sheep Commissioners, Messrs. Ritch and Dryden, had been instructed by you to be present at some of these meetings. I accompanied them as interpreter at St. Barnabé, Nicolet and Hébertville where the farmers were strongly urged to come back to the old custom of keeping a flock of sheep in proportion to the size of their farm.

We found the farmers very well disposed; the ground is well prepared and it would be rather easy to induce a large number of them to keep sheep. With that end in view the following programme has been elaborated and submitted to the federal and provincial Departments of Agriculture for approval.

The Sheep Breeders' Association would supply one ram *free* to each club of five members, who are not already keeping sheep, but who will get at least five ewes each. The Provincial Departmentt of Agriculture would give the Association a grant of $1,500 to pay for fifty rams; the Dominion Department would pay the expenses of transportation; the Association would organize the clubs; purchase the rams and distribute them and do all that would be necessary to make a success of the undertaking.

The project has been approved by the Honourable Mr. Fisher, and, as far as the Dominion Department of Agriculture is concerned, it will be carried out. It is hoped that the provincial government will give it its approval and give the Association the grant it has asked.

I am confident that if such a programme could be carried out for several years it would greatly help to generalize sheep raising in this province. It would not take long to get 1,000 farmers to go into sheep raising. They would serve as an example to others who could not but imitate them if they were successful.

But in order to make a success of the undertaking the beginners would have to be instructed and encouraged. Therefore, if this project is carried out, as I hope it will, arrangements will be made to secure the services of an expert shepherd whose duties will be to educate the farmers in sheep raising. This we consider absolutely necessary because the present generation of the farming element has a very scant knowledge of the business.

As regards sheep raising your representative in this province has three objects in view which he will make every effort to attain, viz.:—First, to bring every farmer to keep a small flock of not more than ten ewes;—Second, to carry on a campaign of education upon sheep raising—Third, to bring the farmers of one section (parish or county) to keep sheep of the one breed or at least of the one kind, (long wool and short wool). In connection with the latter I might say that the farmers of a section of the Lake St. John district have already agreed to keep on breeding with short wooled sires so as to gradually render their flocks uniform.

All this can very easily be accomplished by the representative of the Live Stock Branch in this province, working in harmony with the General Stock Breeders' Association, provided he is given the co-operation of the Provincial Department of Agriculture.

I have the honour to be,
Sir,
Your obedient servant,

J. A. COUTURE.

Dr. J. G. RUTHERFORD, C. M. G.,
Live Stock Commissioner.
Ottawa, Ont.

APPENDIX No. XXI.

SIXTH ANNUAL REPORT OF THE RECORD COMMITTEE TO THE RECORD BOARD AND RECORD ASSOCIATIONS.
RECORD BOARD, 1910-1911.

Representing Clydesdale Horse Association of Canada:—Robt. Graham, Bedford Park, Ont.; Wm. Smith, Columbus, Ont.; John Bright, Myrtle Station, Ont.; J. A. Boag, Queensville, Ont.; Peter Christie, Manchester, Ont.

Canadian Hackney Horse Society:—Walter Renfrew, Bedford Park, Ont.; T. A. Graham, Claremont, Ont.

Dominion Shorthorn Breeders' Association:—Wm. A. Dryden, Brooklin, Ont.; Harry Smith, Exeter, Ont.; Robt. Miller, Stouffville, Ont.; A. W. Smith, Maple Lodge, Ont.; J. M. Gardhouse, Weston, Ont.; Peter White, Pembroke, Ont.; W. G. Pettit, Freeman, Ont.

Canadian Ayrshire Breeders' Association:—W. F. Stephen, Huntingdon, Que.; W. W. Ballantyne, Stratford, Ont.

Canadian Hereford Breeders' Association:—R. J. Mackie, Oshawa, Ont.; W. H. Hunter, The Maples, Ont.

Canadian Shire Horse Association:—John Gardhouse, Highfield, Ont.; James Henderson, Belton, Ont.

Canadian Thoroughbred Horse Society:—William Hendrie, Hamilton, Ont.; R. W. Davies, Todmorden, Ont.

Canadian Pony Society:—W. J. Stark, Toronto, Ont.; A. E. Major, Whitevale, Ont.

French Canadian Cattle Breeders' Association:—Hon. N. Garneau, Quebec, Que.; T. B. Macaulay, Montreal, Que.; Arsene Denis, St. Norbert Station, Que.

French Canadian Horse Breeders' Association:—Robt. Ness, Howick, Que.; Arsene Denis, St. Norbert Station, Que.; Dr. J. A. Couture, Quebec, Que.

North American Galloway Association:—D. McCrae, Guelph, Ont.; Robt. Shaw, Brantford, Ont.

Dominion Sheep Breeders' Association:—Jno. W. Campbell, Woodville, Ont.; R. H. Harding, Thorndale, Ont.

Canadian Red Polled Association:—H. V. Clendenning, Harding, Man.; Dr. A. W. Bell, Winnipeg, Man.

Dominion Swine Breeders' Association:—Joseph Featherston, Streetsville, Ont.; J. E. Brethour, Burford, Ont.

Canadian Jersey Cattle Club:—L. J. C. Bull, Brampton, Ont.; R. Reid, Berlin, Ont.

Canadian Guernsey Breeders' Association:—H. W. Corning, Cheggogin, N.S.; D. J. McKay, Heath Bell, N.S.

Canadian Aberdeen Angus Association:—James Bowman, Guelph, Ont.; F. J. Collyer, Welwyn, Sask.

Canadian Percheron Horse Breeders' Association:—R. P. Stanley, Moosomin, Sask.; Geo. Lane, Calgary, Alta.

Canadian Belgian Horse Breeders' Association:—Paul Tourigny, Quebec, Que.; Que.; J. Arthur Paquette, Quebec, Que.

Canadian French Coach-Horse Breeders' Association:—Geo. E. Goddard, Cochrane, Alta.; I. G. Ruttle, Calgary, Alta.

Canadian Suffolk Horse Society:—J. A. W. Fraser, Cochrane, Alta.; Norman Jacques, Ingleton, Alta.

Canadian Standard Bred Horse Society:—Robert Davies, Todmorden, Ont.; O. B. Sheppard, Toronto, Ont.

CANADIAN RECORD ASSOCIATIONS.

NAME OF ASSOCIATION. SECRETARY.

Dominion Swine Breeders' Association:—A. P. Westervelt, Parliament Buildings, Toronto, Ont.

Dominion Sheep Breeders' Association:—A. P. Westervelt, Parliament Buildings, Toronto, Ont.

Dominion Shorthorn Breeders' Association:—W. G. Pettit, Freeman, Ont.

Canadian Ayrshire Breeders' Association:—W. F. Stephen, Huntingdon, Que.

Canadian Hereford Breeders' Association:—R. J. Mackie, Oshawa, Ont.

Canadian Jersey Cattle Club:—R. Reid, Berlin, Ont.

North American Galloway Association:—Lieut.-Col. D. McCrae, Guelph, Ont.

Canadian Guernsey Breeders' Association:—H. W. Corning, Cheggogin, N.S.

Canadian Aberdeen Angus Association:—F. J. Collyer, Welwyn, Sask.

French Canadian Cattle Breeders' Association:—J. A. Couture, D.V.S., 49 Garden St., Quebec, Que.

Canadian Red Polled Association:—Dr. A. W. Bell, Union Bank Bld., Winnipeg, Man.

Clydesdale Horse Association of Canada:—J. W. Sangster, 12 Wellington St. E., Toronto, Ont.

Canadian Shire Horse Association:—G. de W. Green, Parliament Buildings, Toronto, Ont.

Canadian Hackney Horse Society:—H. M. Robinson, 49 Colborne St., Toronto, Ont.

French Canadian Horse Breeders' Association:—Dr. J. A. Couture, D.V.S., 49 Garden St., Quebec, Que.

Canadian Percheron Horse Breeders' Association:—F. L. Pike, High River, Alta.

Canadian Belgian Horse Breeders' Association:—J. A. Paquette, Department of Agriculture, Quebec, Que.

Canadian Thoroughbred Horse Society:—J. J. Dixon, Canada Life Building, Toronto, Ont.

Canadian Pony Society:—W. J. Stark, 12 Wellington St. E., Toronto, Ont.

Canadian Suffolk Horse Society:—Arch. Jacques, Lamerton, Alta.

Canadian French Coach-Horse Breeders' Association:—E. L. Richardson, Calgary, Alta.

Canadian Standard Bred Horse Society:—Jno. W. Brant, Ottawa, Ont.

RECORD COMMITTEE, 1910.

A. W. Smith, M.P., Maple Lodge, Ont., Chairman.
John Bright, Myrtle Station, Ont., Representing Heavy Horses.
W. J. Stark, Toronto, Ont., Light Horses.
Robert Miller, Stouffville, Ont., Beef Cattle.
Hon. N. Garneau, Quebec, Que., Dairy Cattle.
J. M. Gardhouse, Weston, Ont., Sheep.
J. E. Brethour, Burford, Ont., Swine.
Jno. W. Brant, Ottawa. Ont., Secretary-Treasurer.

FINANCIAL STATEMENT

FOR THE YEAR ENDING DECEMBER 31ST, 1910.

Receipts.

	$ cts.	$ cts.
Balance on hand December 31st, 1909		1,846 10
Dominion Government Grant		7,949 45
Dominion Shorthorn Breeders' Association—		
Levy for salaries, 1910	3,249 96	
Levy for refunds, 1910	480 00	3,729 96
Canadian Ayrshire Breeders' Association—		
Adjustment of charges, 1909	100 69	
Levy for salaries, 1910	600 00	
Levy for refunds, 1910	50 00	750 69
Clydesdale Horse Association of Canada—		
Levy for salaries, 1910	1,210 00	
Levy for refunds, 1910	330 00	
Adjustment of charges, 1909	536 27	2,076 27
Canadian Hereford Breeders' Association—		
Adjustment of charges, 1909	90 17	
Levy for salaries, 1910	360 00	450 17
Dominion Swine Breeders' Association—		
Levy for salaries, 1910	1,200 00	1,200 00
Canadian Hackney Horse Society—		
Adjustment of charges, 1909	63 72	63 72
Canadian Shire Horse Association—		
Adjustment of charges, 1909	77 83	77 83
Canadian Aberdeen Angus Association—		
Adjustment of charges, 1909	175 14	175 14
Dominion Sheep Breeders' Association—		
Adjustment of charges, 1909	488 65	488 65
North American Galloway Association—		
Adjustment of charges, 1909	10 71	10 71
Canadian Jersey Cattle Club—		
Adjustment of charges, 1909	107 20	107 20
Canadian Red Polled Association—		
Adjustment of charges, 1909	44 84	44 84
Canadian Guernsey Breeders' Association—		
Adjustment of charges, 1909	16 48	16 48
French Canadian Cattle Breeders' Association—		
Adjustment of charges, 1908, 1909	179 01	179 01
Carried forward		

Receipts—Continued.

	$ cts.	$ cts.
Brought forward		
French Canadian Horse Breeders' Association—		
Adjustment of charges, 1909	30 79	30 79
Canadian Belgian Draught Horse Breeders' Association—		
Adjustment of charges, 1909	15 33	15 33
Canadian Percheron Horse Breeders' Association—		
Adjustment of charges, 1909	171 04	171 04
Canadian Pony Society—		
Adjustment of charges, 1909	17 33	17 33
Canadian Thoroughbred Horse Society—		
Adjustment of charges, 1909	73 34	73 34
Received for Import Certificates	1,754 54	1,754 54
Refunds, Canadian Express Company	1 00	1 00
		$21,229 59

Expenditures.

Salaries in Record Office—		
Jno. W. Brant	$2,500 00	
R. G. T. Hitchman	1,400 00	
H. E. Martinette	1,375 00	
E. J. Bartlett	1,075 00	
A. R. Dawson	616 66	
Chas. Murray	1,149 99	
S. Kennedy	575 00	
R. J. Allen	275 00	
F. M. Wade	325 00	
R. B. Cooley	187 50	
I. Larose	607 95	
A. M. Day	609 55	
I. B. Moodie	600 00	
N. E. Moodie	517 20	
R. E. LeGendre	350 00	
D. M. Milroy	356 15	
A. M. Gunderson	368 00	
I. Lemoine	47 00	
G. D'Auray	144 00	
E. Jessop	24 00	
E. McKeever	45 00	
		$13,148 00
Expenses of Record Committee		733 70
Dominion Shorthorn Breeders' Association—		
Adjustment of charges, 1909	612 21	612 21
Dominion Swine Breeders' Association—		
Adjustment of charges, 1909	303 66	303 66
Geo. L. Blatch, auditing, 1910	100 00	100 00
Refunds of excess of fees	1,098 98	1,098 98
Office furniture and typewriters	771 00	771 00
Telephone, telegraph and petty expenses	161 15	161 15
Proof reading	61 15	61 15
Printing	608 00	608 00
Balance in Bank, December 31st, 1910	3,621 74	3,621 74
Office cash	10 00	10 00
		$21,229 59

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor

SESSIONAL PAPER No. 15c

DOMINION SWINE BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS, ETC., 1910

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
8,205	537	30	$932 00

DISTRIBUTION BY PROVINCES.

	Registrations	Transfers.	Dup. & New Certificates.	Membership Rec.
				$
Ontario	3,576	245	13	352 00
Manitoba	779	63	5	128 00
Saskatchewan	383	43	1	88 00
Alberta	448	50	5	76 00
British Columbia	157	24	.....	32 00
Quebec	1,426	83	4	186 00
New Brunswick	172	7	.....	26 00
Nova Scotia	80	7	.....	16 00
Prince Edward Island	128	10	2	22 00
United States	1,056	5	.....	6 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Dominion Swine Breeders' Association.

January 1st to December 31st, 1910.

For registration and memberships $5,716 65

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING SWINE RECORD.

Receipts.

Received from Association to pay salaries, 1910	1,200 00
Applied from Government Grant, 1910	342 57
Balance owing to Record Committee by Association	114 80
	$1,657 37

Expenditures.

Paid salaries to December 31st, 1910	1,590 23
" refunds to December 31st, 1910	55 04
" for audit to December 31st, 1910	12 10
	$1,657 37

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

DOMINION SHEEP BREEDERS' ASSOCIATION.

Registrations, Transfers, &c., 1910.

Registration.	Transfers.	Dup. & New Certificates	Membership Rec.
2,105	309	6	$237 00

DISTRIBUTION BY PROVINCES.

—	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	986	99	3	$67 00
Manitoba	93	21	.....	9 00
Saskatchewan	21	16	.....	6 00
Alberta	158	34	1	10 00
British Columbia	71	2	.....	6 00
Quebec	714	134	1	131 00
New Brunswick	12	1	.....	5 00
Nova Scotia	2	1	.....	1 00
Prince Edward Island	26	.....	.....	1 00
United States	22	1	1	1 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Dominion Sheep Breeders' Association.

January 1st to December 31st, 1901.

For registrations and memberships..... 1,616 65

RECEIPTS AND EXPENDITURES.

For Conducting Sheep Record.

Receipts.

Applied from Government Grant, 1910	$ 98 49
Balance owing to Record Committee by Association	525 99
	$624 48

Expenditures.

Paid salaries to December 31st, 1910	$545 14
" refunds to December 31st, 1910	75 94
" for audit to December 31st, 1910	3 40
	$624 48

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

DOMINION SHORTHORN BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS, &c., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
7,544	3,944	334	$3,470 00

DISTRIBUTION BY PROVINCES.

—	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	4,989	1,872	158	$2,332 00
Manitoba	975	412	69	524 00
Saskatchewan	490	261	666	228 00
Alberta	473	258	24	208 00
British Columbia	7	10	1	6 00
Quebec	217	99	3	80 00
New Brunswick	47	24	2	14 00
Nova Scotia	121	78	4	62 00
Prince Edward Island	39	8	2	12 00
United States	186	22	5	4 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Dominion Shorthorn Breeders' Association.

January 1st to December 31st, 1910.

For registration and membership	$11,358 19
For Herd Books	4 00
From W. G. Pettit for deposit	612 21
	$11,974 40

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING SHORTHORN RECORDS.

Receipts.

Received from Association to pay salaries, 1910	$ 3,249 96
Received from Association to pay refunds, 1910	480 00
Applied from Government Grant, 1910	422 98
	$ 4,152 94

Expenditures.

Paid salaries to December 31st, 1910	$ 3,270 59
" refunds to December 31st, 1910	232 77
" for audit to December 31st, 1910	25 39
Balance owing to Association by Record Committee	624 19
	$ 4,152 94

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

CANADIAN AYRSHIRE BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS, &c., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
2,395	1,079	81	$802 00

DISTRIBUTION BY PROVINCES.

——	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	856	407	29	252 00
Manitoba	53	42	.....	30 00
Saskatchewan	18	7	2	8 00
Alberta	33	82	....	22 00
British Columbia	36	5	.....	14 00
Quebec	1,178	430	42	382 00
New Brunswick	90	54	1	36 00
Nova Scotia	89	28	6	36 00
Prince Edward Island	32	14	.....	16 00
United States	10	10	1	6 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Ayrshire Breeders' Association.

January 1st to December 31st, 1910.

For registrations and memberships..... $4,126 37

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING AYRSHIRE RECORD.

Receipts.

Received from Association to pay salaries, 1910	$ 600 00
Received from Association to pay refunds, 1910	50 00
Applied from Government Grant, 1910	423 93
	$1,073 93

Expenditures.

Paid salaries to December 31st, 1910	$ 941 12
" refunds to December 31st, 1910	36 06
" for audit to December 31st, 1910	8 76
Balance owing to Association by Record Committee	87 99
	$1,073 93

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

CANADIAN HEREFORD BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS, &c., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
819	345	13	$244 00

DISTRIBUTION BY PROVINCES.

—	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	411	122	2	$134 00
Manitoba	80	23	1	40 00
Saskatchewan	149	94		24 00
Alberta	141	82	10	42 00
British Columbia				
Quebec	1			
New Brunswick	8			
Nova Scotia	14	1		2 00
Prince Edward Island		1		
United States	15	22		2 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Hereford Breeders' Association.

January 1st to December 31st, 1910.

For registrations and memberships $1,089 45

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING HEREFORD RECORDS.

Receipts.

Received from Association to pay salaries, 1910	$	360 00
Applied from Government Grant, 1910		140 03
	$	500 03

Expenditures.

Paid salaries to December 31st, 1910	$	310 64
" refunds to December 31st, 1910		28 02
" audit to December 31st, 1910		2 30
Balance owing to Association by Record Committee		159 07
		$500 03

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

CANADIAN JERSEY CATTLE CLUB.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
543	141	1	$95 00

DISTRIBUTION BY PROVINCES.

	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	326	97	1	$52 00
Manitoba	52	6	.....	10 00
Saskatchewan	10	3	.....	3 00
Alberta	11	9	.....	3 00
British Columbia	27	6	.....	5 00
Quebec	22	3	.....	5 00
New Brunswick	41	9	.....	6 00
Nova Scotia	42	5	.....	8 00
Prince Edward Island	12	3	.....	3 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Jersey Cattle Club.

January 1 to December 31, 1910.

For registrations and memberships $755 60

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING JERSEY RECORD.

Receipts.

Applied from Government grant, 1910	$ 82 16
Balance owing Record Committee by Jersey Club	196 45
	$ 278 61

EXPENDITURES.

Paid salaries to December 31, 1910	$ 215 73
" refunds to December 31, 1910	61 28
" audit to December 31, 1910	1 60
	$ 278 61

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.
Auditor.

SESSIONAL PAPER No. 15c

NORTH AMERICAN GALLOWAY ASSOCIATION.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
71	40	1	$9 00

DISTRIBUTION BY PROVINCES.

	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	29	5	1	$3 00
Manitoba	11	17	.....	3 00
Saskatchewan	17	.....	.....	1 00
Alberta	14	18	.....	2 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the North American Galloway Association.

January 1 to December 31, 1910.

For registrations and memberships..... $79 10

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING GALLOWAY RECORD.

Receipts.

Applied from Government grant, 1910	$12 89
Balance owing to Record Committee by Association	20 75
	$33 64

Expenditures.

Paid salaries to December 31, 1910	$33 48
" for audit to December 31, 1910	16
	$33 64

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

CANADIAN GUERNSEY BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
87	30	.....	$13 00

DISTRIBUTION BY PROVINCES.

—	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	4	15	.....	$2 00
Quebec	23	6	.....	4 00
New Brunswick	9	1	.....	3 00
Nova Scotia	37	5	.....	4 00
Prince Edward Island	12	3	.....	.....
United States	2	.....	.....	.....

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Guernsey Breeders' Association.

January 1 to December 31, 1910.

For registrations and memberships..... $106 90

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING GUERNSEY RECORD.

Receipts.

Applied from Government grant, 1910	$25 65
Balance owing to Record Committee by Association	42 35
	$68 00

Expenditures.

Paid salaries to December 31, 1910	$66 21
" refunds to December 31, 1910	1 56
" for audit to December 31, 1910	23
	$68 00

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

CANADIAN ABERDEEN ANGUS ASSOCIATION.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
917	222	4	$186 00

DISTRIBUTION BY PROVINCES.

—	Registrations.	Transfers.	Dup. & New Certificates	Membership Rec.
Ontario	471	103		$94 00
Manitoba	212	47	1	46 00
Saskatchewan	11	9	1	12 00
Alberta	205	59	2	26 00
British Columbia	13	3		
Quebec	4			4 00
Prince Edward Island	1	1		4 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Aberdeen Angus Association.

January 1 to December 31, 1910.

For registrations and memberships	$1,559 40
For Herd Books	2 50
	$1,561 90

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING ABERDEEN ANGUS RECORD.

Receipts.

Applied from Government grant, 1910	$132 69
Balance owing to Record Committee by Association	186 93
	$319 62

Expenditures.

Paid salaries to December 31, 1910	$294 34
" refunds to December 31, 1910	21 99
" for audit to December 31, 1910	3 29
	$319 62

JNO. W BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

FRENCH CANADIAN CATTLE BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates	Membership Rec.
257	86	1	$89.00

DISTRIBUTION BY PROVINCES.

	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	1	1	.....	$ 1.00
Quebec	256	81	1	88.00
United States	.....	4	.....	.....

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the French Canadian Cattle Breeders' Association.

January 1st to December 31st, 1910.

For registrations and memberships.....$312.15

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING FRENCH CANADIAN CATTLE RECORD.

RECEIPTS.

Applied from Government Grant 1910	$12.13
Balance owing to Record Committee by Association	88.19
	$100.32

EXPENDITURES.

Paid salaries to December 31st, 1910	$96.04
" refunds to December 31st, 1910	3.62
" for audit to December 31st, 1910	.66
	$100.32

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

CANADIAN RED POLLED ASSOCIATION.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
196	20	1	$16.00

DISTRIBUTION BY PROVINCES.

	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	5			
Manitoba	163	17		$4.00
Saskatchewan	3		1	2.00
Alberta	9	1		4.00
British Columbia	16	2		6.00

Cash received at the National Record Office and deposited in the Imperial Bank to the Credit Canadian Red Polled Association.

January 1st to December 31st, 1910.

For registrations and memberships.....$107.00

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING RED POLLED RECORD.

RECEIPTS.

Applied from Government Grant, 1910	$24.45
Balance owing to the Record Committee by Association	40.07
	$64.52

Expenditures.

Paid salaries to December 31st, 1910	63.27
" refunds to December 31st, 1910	1.02
" for audit to December 31st, 1910	.23
	$64.52

JNO. W. BRANT,
Accountant.

GEO. L. BLATC F.C.A.,
Auditor.

CLYDESDALE HORSE ASSOCIATION OF CANADA.

Registrations, Transfers, Etc., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
5,702	2,078	184	$2,588 00

DISTRIBUTION BY PROVINCES.

——	Registrations.	Transfers.	Dup. & New Certificates.	Menbership Rec.
Ontario	3,398	965	58	$1,720.00
Manitoba	561	325	20	330.00
Saskatchewan	699	347	76	230.00
Alberta	494	263	14	126.00
British Columbia	134	23	2	24.00
Quebec	245	100	8	100.00
New Brunswick	35	25	4	10.00
Nova Scotia	27	10	2	28.00
Prince Edward Island	13	12		10.00
United States	5	1		8.00
Scotland	91	2		2.00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Clydesdale Horse Association of Canada.

January 1st to December 31st, 1910.

For registrations and memberships	$13,059.10
For Stud Books	69.00
	$13,128.10

RECEIPTS AND EXPENDITURES.

For Conducting Clydesdale Record.

Receipts.

Received from Association to pay salaries, 1910	$1,210.00
Received from Association to pay refunds, 1910	330.00
Applied from Government Grant, 1910	258.92
Balance owing to Record Committee by Association	1,082.96
	$2,881.88

Expenditures.

Paid salaries to December 31st, 1910	$2,531.55
" refunds to December 31st, 1910	322.51
" for audit to December 31st, 1910	27.82
	$2,881.88

JNO. W. Brant,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

CANADIAN SHIRE HORSE ASSOCIATION.

Registrations, Transfers, Etc., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
126	55	1	$116.00

DISTRIBUTION BY PROVINCES.

——	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	32	33	1	$66.00
Manitoba	15	13		16.00
Saskatchewan	11			8.00
Alberta	62	7		20.00
British Columbia				2.00
Quebec		1		
United States	6	1		2.00
England				2.00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Shire Horse Association.

January 1st to December 31st, 1910.

For registrations and menberships	$394.45
For Stud Books	4.00
	$398.45

RECEIPTS AND EXPENDITURES.

For Conducting Shire Record.

Receipts.

Applied from Government Grant, 1910	$90.85
Balance owing to Record Committee by Association	61.39
	$152.24

Expenditures.

Paid salaries to December 31st, 1910	$143.32
" refunds to December 31st, 1910	8.08
" for audit to December 31st, 1910	.84
	$152.24

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

CANADIAN HACKNEY HORSE SOCIETY.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
167	67	7	$96 00

DISTRIBUTION BY PROVINCES.

	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	79	26	2	$42 00
Manitoba	9	3	.....	3 00
Saskatchewan	8	10	.....	15 00
Alberta	20	5	1	9 00
British Columbia	17	14	2	12 00
Quebec	26	5	1	9 00
New Brunswick	4	1	.....	3 00
Nova Scotia	1	1	1	.....
Prince Edward Island	1	1	.....	3 00
United States	2	1	.....	.....

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Hackney Horse Society.

January 1st to December 31st, 1910

For registrations and memberships	$641 16
For Stud Books	3 00
	$644 16

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING HACKNEY RECORD.

Receipts.

Applied from Government Grant	$104 30
Balance owing to Record Committee by Society	103 80
	$208 10

Expenditures.

Paid salaries to December 31st, 1910	$164 39
" refunds to December 31st, 1910	42 36
" for audit to December 31st, 1910	1 35
	$208 10

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

FRENCH CANADIAN HORSE BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS, ETC., 1910

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
118	16	3	$75 00

DISTRIBUTION BY PROVINCES.

	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario		1	1	
Manitoba	5			
Alberta	1			
Quebec	112	15	2	$75 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the French Canadian Horse Breeders' Association.

January 1st to December 31st, 1910.

For registrations and memberships	$318 80

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING FRENCH CANADIAN HORSE RECORD.

Receipts.

Applied from Government Grant, 1910	$ 5 90	
Balance owing to Record Committee by Association	59 02	
		$64 92

Expenditures.

Paid salaries to December 31st, 1910	$46 76
" refunds to December 31st, 1910	17 49
" for audit to December 31st, 1910	0 67
	$64 92

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

CANADIAN PERCHERON HORSE BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
969	87	3	$140 00

DISTRIBUTION BY PROVINCES.

——	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	181	8		$44 00
Manitoba	133	8		18 00
Saskatchewan	115	22		32 00
Alberta	429	44	1	22 00
British Columbia	9			2 00
Quebec	21	2	1	8 00
New Brunswick	6	3	1	2 00
Nova Scotia	4			4 00
United States	71			8 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Percheron Horse Breeders' Association.

January 1st to December 31st, 1910.

For registrations and memberships $2,082 05

——

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING PERCHERON RECORD.

Receipts.

Applied from Government Grant, 1910	$426 76
Balance owing to Record Committee by Association	345 26
	$772 02

Expenditures.

Paid salaries to December 31st, 1910	$683 62
" refunds to December 31st, 1910	84 02
" for audit to December 31st, 1910	4 38
	$772 02

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

CANADIAN BELGIAN DRAFT HORSE BREEDERS' ASSOCIATION.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
163	22	.....	$20 00

DISTRIBUTION BY PROVINCES.

	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	9	.....	.....	.....
Manitoba	37	3	.....	$4 00
Saskatchewan	3	.....	.....	4 00
Alberta	48	12	.....	4 00
British Columbia	2	.....	.....	.....
Quebec	63	5	.....	8 00
United States	1	2	.....	.....

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Belgian Draft Horse Breeders' Association.

January 1st to December 31st, 1910.

For registrations and memberships $492 90

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING BELGIAN DRAFT RECORD.

Receipts.

Applied from Government Grant, 1910	$ 5 45
Balance owing to Record Committee by Association	58 02
	$63 47

Expenditures.

Paid salaries to December 31st, 1910	$58 41
" refunds to December 31st, 1910	4 03
" for audit to December 31st, 1910	1 03
	$63 47

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

CANADIAN THOROUGHBRED HORSE SOCIETY.

REGISTRATIONS, TRANSFERS, ETC., 1910.

——	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
	243	22	.....	$6 00

DISTRIBUTION BY PROVINCES.

——	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	115	10	.....	$34 00
Manitoba	12	.....	.....	4 00
Saskatchewan	11	2	.....	4 00
Alberta	14	4	.....	2 00
British Columbia	27	3	.....	12 00
Quebec	33	2	.....	8 00
New Brunswick	12	1	.....	.....
United States	19	.....	.....	.....

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Thoroughbred Horse Society.

January 1 to December 31, 1910.

For registrations and memberships..... $503 25

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING THOROUGHBRED RECORD.

Receipts.

Applied from Government grant, 1910	$113 37
Balance owing to Record Committee by Society	99 00
	$212 37

Expenditures.

Paid salaries to December 31, 1910	$181 48
" refunds to December 31, 1910	29 84
" for audit to December 31, 1910	1 05
	$212 37

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

CANADIAN PONY SOCIETY.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Member-ship, Rec.
102	2	.....	$24 00

DISTRIBUTION BY PROVINCES.

	Registra-tions.	Trans-fers.	Dup. & New Certificates.	Member-ship Rec.
Ontario	47	.....	.....	$20 00
Saskatchewan	4	.....	.....	2 00
Alberta	15	2	.....	2 00
British Columbia	15	.....	.....	.....
Scotland	21	.....	.....	.....

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Pony Society.

January 1st to December 31st, 1910.

For registrations and memberships $185 85

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING PONY RECORDS.

Receipts.

Applied from Government grant, 1910	$57 41
Balance owing to Record Committee by Society	29 19
	$86 60

Expenditures.

Paid salaries ro December 31, 1910	$79 70
" refunds to December 31, 1910	6 52
" for audit to December 31, 1910	0 38

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

CANADIAN SUFFOLK HORSE SOCIETY.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
22			$22 00

DISTRIBUTION BY PROVINCES.

	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Saskatchewan	8			$4 00
Alberta	10			18 00
British Columbia	4			

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Suffolk Horse Society.

January 1 to December 31, 1910.

For registrations and memberships $96 85

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING SUFFOLK RECORD.

Receipts.

Applied from Government grant, 1910	$22 83

Expenditures.

Paid salaries to December 31, 1910	$22 63
" for audit to December 31, 1910	0 20
	$22 83

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

SESSIONAL PAPER No. 15c

CANADIAN FRENCH COACH HORSE SOCIETY.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Member-ship Rec.
12			$4 00

DISTRIBUTION BY PROVINCES.

	Registra-tions.	Trans-fers.	Dup. & New Certificates.	Member-ship Rec.
Ontario	2			
Alberta	10			$4 00

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian French Coach Horse Society.

January 1 to December 31, 1910.

For registrations and memberships $32 00

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING CANADIAN FRENCH COACH HORSE RECORD.

Receipts.

Applied from Government grant, 1910 ..... $9 43

Expenditures.

Paid salaries to December 31, 1910 ..... $9 36
" for audit to December 31, 1910 ..... 0 07

$9 43

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

CANADIAN STANDARD BRED HORSE SOCIETY.

REGISTRATIONS, TRANSFERS, ETC., 1910.

Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
42	.....	.....	$101 00

DISTRIBUTION BY PROVINCES.

—	Registrations.	Transfers.	Dup. & New Certificates.	Membership Rec.
Ontario	20	.....	.....	$29 00
Manitoba	3	.....	.....	2 00
Alberta	4	.....	.....	4 00
British Columbia	5	.....	.....	27 00
Quebec	9	.....	.....	29 00
New Brunswick	1	.....	.....	.....

Cash received at the National Record Office and deposited in the Imperial Bank to the credit of the Canadian Standard Bred Horse Society.

January 1st to December 31st, 1910.

For registrations and memberships..... ..... $196 50

RECEIPTS AND EXPENDITURES.

FOR CONDUCTING STANDARD BRED RECORD.

Receipts.	$ cts.
Applied from Government Grant, 1910.....	63 56
Expenditures.	
Paid salaries to December 31st, 1910.....	63 15
" for audit to December 31st, 1910.....	0 41
	$63 56

JNO. W. BRANT,
Accountant.

GEO. L. BLATCH, F.C.A.,
Auditor.

COMPARATIVE STATEMENT for the years 1906, 1907, 1908, 1909, and 1910, showing Pedigrees and Transfers recorded and amount of fees received.

As ociation.	PEDIGREES RECORDED.					TRANSFERS RECORDED.					MONEY RECEIVED				
	1906.	1907.	1908.	1909.	1910.	1906.	1907.	1908.	1909.	1910.	1906.	1907.	1908.	1909.	1910.
											$ cts.	$ cts.	$ cts.	$ cts.	$ ct .
Shorthorn	9,653	10,253	7,038	7,487	7,544	2,626	2,804	2,272	2,827	3,044	11,859 95	14,508 40	10,832 10	12,214 42	11,974 40
Ayrshire	2,075	2,144	1,653	2,373	2,395	651	914	694	985	1,079	2,225 92	2,797 90	2,6 5 93	3,496 38	4,126 37
Hereford	1,066	683	90	1,214	819	345	141	277	265	345	836 65	32 45	933 35	1,300 15	1,089 45
Swine	6,637	6,277	4,435	3,735	8,205	533	594	459	407	537	4,447 10	4,562 93	3,422 00	3,121 60	5,716 (5
Clydesdale	2,418	6,117	2,665	5,169	5,702	520	511	560	1,812	2,078	3,281 20	7,296 40	4 575 19	11,253 27	13,128 10
Hackney	103	132	112	182	167	22	55	15	71	67	262 90	395 40	342 85	686 25	644 16
Shire	53	100	124	284	126	12	8	9	40	55	02 50	165 00	194 50	573 55	396 45
Thoroughbred	52	6	139	273	243	.....	.....	.....	7	22	59 00	24 00	262 40	583 10	503 25
Sheep	1,281	3,628	2,060	2,572	2,105	100	240	190	570	309	450 25	1,234 95	1,314 84	1,682 95	1,616 65
Aberde n Angus	1,274	1,106	820	670	917	40	84	94	152	222	268 75	341 60	563 35	625 40	1,561 90
Galloway	81	103	96	41	71	7	4	15	11	40	68 25	56 25	119 15	51 55	79 10
Jersey	134	326	223	340	543	6	27	92	107	141	135 25	334 85	304 80	505 90	755 60
Red Polled	353	36	172	320	196	.....	2	5	4	20	17 75	28 00	40 50	56 50	107 00
Guernsey	33	38	73	76	87	5	4	5	19	30	25 25	47 50	68 25	90 00	106 90
Canadian Cattle	667	576	324	254	257	22	42	51	72	86	134 55	135 50	174 75	275 10	312 15
Canadian Horses	84	474	246	85	118	13	3	8	23	16	101 00	228 50	237 60	530 26	318 80
Pony	.....	.....	49	37	102	.....	.....	.....	5	2	.....	.....	64 20	73 00	185 85
Belgian	.....	.....	16	58	163	.....	.....	.....	1	22	.....	.....	80 00	210 00	492 90
Percheron	.....	.....	1,244	993	969	.....	.....	6	9	87	.....	.....	1,176 85	1,529 25	2,082 05
Suffolk	.....	.....	.....	.....	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	96 85
French Coach	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	32 00
Standard Bred	.....	.....	.....	.....	42	.....	.....	.....	.....	.....	.....	.....	.....	.....	196 50
Record Committee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37 00	1,220 10	1,754 54
Total	25,964	31,999	22,390	26,163	30,805	4,902	5,433	4,752	7,387	8,202	24,276 27	32,985 63	27,439 61	40,078 73	47,277 62

DISTRIBUTION

Association.	Jno. W. Brant.	R. G. T. Hitchman.	H. E. Martinette.	E. J. Bartlett.	A. R. Dawson.	Chas. Murray.	S. Kennedy.	R. J. Allen.	F. M. Wade.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Swine Association	516 72			15 73	127 16			215 00	
Sheep Association	148 65			4 40	36 70			60 00	
Shorthorn Association	707 95	1,400 00		20 93	174 31				
Ayrshire Association	221 26			6 55	55 40		289 47		
Hereford Association	72 65			2 20	18 00		95 82		
Jersey Club	43 63			1 34	10 71		55 78		
Galloway Association	6 77			0 22	1 63		8 84		
Angus Association	69 13			2 08	17 00		90 69		
Guernsey Association	12 86			0 42	3 28		17 61		
French Canadian Cattle Assn.	24 27		65 10	0 74	5 93				
Red Polled Association	12 58			0 39	3 10		16 79		
Clydesdale Association	517 84			1,007 92	127 66				268 63
Shire Association	13 59			4 08	3 28	94 56			6 96
Hackney Society	15 27			4 67	3 78	108 74			8 00
French Canadian Horse Assn.	11 80		31 65	0 37	2 94				
Percheron Association	63 25		28 20	1 88	15 51	444 55			32 71
Belgian Draft Association	10 91		44 55	0 34	2 61				
Standard Bred Society	5 15				1 32	48 33			
Thorough bred Society	16 61		7 50	0 52	4 10	118 19			8 70
Pony Society	6 49			0 22	1 63	60 95			
Suffolk Society	1 84				0 47	17 33			
French Coach Association	0 78				0 14	7 35			
Translator			1,198 00						
Record Committee						249 99			
Total Salary	2,500 00	1,400 00	1,375 00	1,075 00	616 66	1,149 99	575 00	275 00	325 00

SESSIONAL PAPER No. 15c

OF SALARIES.

R. B. Cooley.	I. Larose.	A. M. Day.	I. B. Moodie.	N. E. Moodie.	R. E. Legendre.	D. M. Milroy.	A. M. Gunderson.	Temporary Assistance.	Total paid by each Association.	Charged to each Association.	Charged to Government Grant.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
145 45	260 42	6 55	16 45	5 75	.....	97 65	5 75	32 60	1,590 23	1,247 66	342 57
42 05	253 34	.....	.....	.....	.....	.....	.....	.....	545 14	446 65	98 49
.....	.....	.....	.....	511 45	.....	2 65	359 25	94 05	3,270 59	2,847 61	422 98
.....	.....	.....	232 69	.....	.....	135 75	.....	.....	941 12	517 19	423 93
.....	.....	.....	77 03	.....	.....	44 94	.....	.....	310 64	170 61	140 03
.....	54 35	.....	31 52	.....	.....	18 40	.....	.....	215 73	133 57	82 16
.....	8 15	.....	4 97	.....	.....	2 90	.....	.....	33 48	20 59	12 89
.....	.....	.....	72 91	.....	.....	42 53	.....	.....	294 34	161 65	132 69
.....	16 29	.....	9 95	.....	.....	5 80	.....	.....	66 21	40 56	25 65
.....	.....	.....	.....	.....	.....	.....	.....	.....	96 04	83 91	12 13
.....	15 40	.....	9 48	.....	.....	5 53	.....	.....	63 27	38 92	24 45
.....	.....	603 00	.....	.....	.....	.....	3 00	3 50	2,531 55	2,272 63	258 92
.....	.....	.....	.....	.....	.....	.....	.....	20 85	143 32	52 47	90 85
.....	.....	.....	.....	.....	.....	.....	.....	23 93	164 39	60 09	104 30
.....	.....	.....	.....	.....	.....	.....	.....	.....	46 76	40 86	5 90
.....	.....	.....	.....	.....	.....	.....	.....	97 52	683 62	256 86	426 76
.....	.....	.....	.....	.....	.....	.....	.....	.....	58 41	52 96	5 45
.....	.....	.....	.....	.....	.....	.....	.....	8 35	63 15	.....	63 15
.....	.....	.....	.....	.....	.....	.....	.....	25 86	181 48	68 11	113 37
.....	.....	.....	.....	.....	.....	.....	.....	10 41	79 70	22 29	57 41
.....	.....	.....	.....	.....	.....	.....	.....	2 99	22 63	.....	22 63
.....	.....	.....	.....	.....	.....	.....	.....	1 09	9 36	.....	9 36
.....	.....	.....	.....	.....	.....	.....	.....	.....	1,198 00	.....	1,198 00
.....	.....	.....	.....	.....	350 00	.....	.....	.....	599 99	350 00	249 99
187 50	607 95	609 55	600 00	517 20	350 00	356 15	368 00	321 15	14,209 15	9,885 09	4,324 06

IMPORTATIONS 1910.

Animals for the improvement of stock were imported as follows during 1910.

Clydesdale Horses	1325	Carried forward	2729
Thoroughbred Horses	171	Red Polled Cattle	74
Percheron Horses	442	Shorthorn Cattle	60
Shire Horses	78	Angus Cattle	175
Hackney Horses	65	Guernsey Cattle	4
Belgian Horses	112	Hunter Horses	6
Ponies	99	Standard Bred Horses	124
Sheep	189	Morgan Horses	4
Swine	79	Suffolk Horses	28
Ayrshire Cattle	101	American Saddle Horses	5
Hereford Cattle	5	French Coach Horses	12
Jersey Cattle	63	German Coach Horses	6
	2729		3227

HERD, STUD AND FLOCK BOOKS ISSUED IN 1910.

Dominion Shorthorn Herd Book	Volume	27
Canadian Ayrshire Herd Book	"	19
Dominion Swine Breeders' Record	"	21
Clydesdale Stud Book of Canada	"	18
Canadian Hackney Stud Book	"	2
Canadian National Record for Sheep	Part 1 "	1
Canadian National Record for Sheep	" 2 "	1

TRANSPORTATION OF PURE-BRED ANIMALS.

To secure reduced transportation rates over the principal Canadian railways for animals for breeding purposes, it is now necessary to present to railway agents, Canadian Certificates of Registration bearing the Seal of the Department of Agriculture. This arrangement is in accordance with the repeated requests of the railway authorities for a uniform certificate of registration. In the case of imported animals of a breed for which there is no Canadian Record, but which are recorded in a recognized Foreign Record, an arrangement has been made for transportation at reduced rates from the point of entry into Canada to destination, on presentation of a transportation certificate to the railway agent. This certificate is issued by the National Record Office in connection with Import Certificate, and is taken up by the railway agent.

All of which is respectfully submitted.

A. W. SMITH, Chairman,
WM. SMITH,
JOHN BRIGHT,
ROBERT MILLER,
N. GARNEAU,
J. E. BRETHOUR,
J. M. GARDHOUSE,
JNO. W. BRANT, Secretary.

Ottawa, Canada, January 16th, 1911.

CANADIAN CUSTOMS REGULATIONS BY WHICH ANIMALS FOR THE IMPROVEMENT OF STOCK ARE ADMITTED FREE OF DUTY.

Consolidated and Amended Regulations Respecting Free Entry of Animals for the Improvement of Stock—in Effect 1st March, 1909.

CUSTOMS MEMO. 1522-B.

Memo. No. 1480-B and Memo. No. 1482-B are hereby cancelled and the following regulations are submitted therefor, in effect 1st March, 1909:—

Under Order in Council of May 21st, 1908, His Excellency the Governor in Council is pleased to order that on and after the 1st day of July, 1908, the regulations

established by Order in Council of the 8th November, 1887, respecting 'Animals for the improvement of stock,' shall be and the same are hereby revoked, and the following regulations prescribed in respect of the free entry under the Customs Tariff of horses cattle, sheep, goats, asses and swine, for the improvement of stock:—

REGULATIONS.

1. No animal imported for the improvement of stock shall be admitted free of duty unless the importer is domiciled in Canada or is a British subject, and furnishes a certificate of the record and pedigree in a list of registers designated from time to time by the Minister of Customs, showing that the animal is pure-bred and has been admitted to full registry in a book of record established for that breed.

An affidavit by the owner, agent or importer that such animal is the identical animal described in said certificate of record and pedigree must be presented.

2. In case such certificate is not at hand at the time of the arrival of the animals, the entry for duty may be accepted subject to the refund of the duty upon production of the requisite certificates and proofs in due form satisfactory to the Collector, within one year from the time of entry.

3. The form of certificate of record and pedigree to be accepted for the free importation of stock, and the Customs procedure in connection therewith shall be subject to the directions of the Minister of Customs.

INSTRUCTIONS.

(*a*) The following is a list of Registers designated by the Minister of Customs, in one of which animals must be registered as pure-bred, prior to admission free of duty for the improvement of stock, viz.:—

For Holstein-Friesian Cattle.

THE HOLSTEIN-FRIESIAN ASSOCIATION OF CANADA, ST. GEORGE, ONT.

For Horses, Cattle, Sheep, Goats, Asses and Swine.
(but not including Holstein-Friesian Cattle).

CANADIAN NATIONAL RECORDS, OTTAWA, CANADA.

also any Register certified by the Accountant of the Canadian National Records as a recognized book of record in the country of the origin of the breed.

(*b*) An Import form of certificate, to be delivered to the Collector of Customs before free entry of animals for improvement of stock is allowed, shall be in one of the forms following, viz.:—

For Live Stock other than Holstein-Friesian Cattle.

IMPORT CERTIFICATE

CANADIAN NATIONAL RECORDS.

FORM 2.

I hereby certify that the animal (name).....
(number).....is pure bred and is registered in the (state book of record).....the Canadian Book of Record for (state breed).....

(Signature).....
Accountant
Canadian National Records.

Ottawa, Canada, ...19.....

15c—20½

IMPORT CERTIFICATE.

CANADIAN NATIONAL RECORDS.

FORM 2-A.

I hereby certify that the animal (name).....
(number).....is registered in the (state book of record)
.....the recognized book of record in the country
of origin of the breed of (state breed).....

(Signature).....
Accountant
Canadian National Records.

Ottawa, Canada,.....19.....

For Holstein-Friesian Cattle:—

IMPORT CERTIFICATE.

HOLSTEIN-FRIESIAN ASSOCIATION OF CANADA.

FORM 1.

I hereby certify that the animal (name).....
(number).....is pure-bred and is registered in the Holstein-Friesian Herd Book of Canada, the Canadian Book of Record for Holstein-Friesian Cattle..

(Signature).....
Secretary,
Holstein-Friesian Breeders' Association
of Canada.

St. George, Ontario,.....19.....

(*c*) The Import Certificate shall be attached to the free Customs entry for transmission by the Collector to the Department of Customs, Ottawa.

The said Certificate shall be marked in each case with the Customs entry number and the office dating stamp.

The Collector of Customs shall not demand or accept any certificate as to pedigree, other than on one of the 'Import Certificate' forms herein prescribed.

(*d*) Animals may be shipped in bond from the Canadian frontier port to the Customs port of destination, subject to quarantine requirements.

(*e*) Import Certificates for Holstein-Friesian Cattle are issued by the Secretary of the Holstein-Friesian Association of Canada, St. George, Ontario.

(*f*) Import Certificates for live stock other than Holstein-Friesian Cattle, may be procured on application to 'Accountant,' Canadian National Records, Ottawa, from whom there may also be obtained a list of Canadian Records, lists of recognized foreign records and other information concerning the importation of pure bred animals for the improvement of stock.

(Sgd.) JOHN McDOUGALD,
Commissioner of Customs.

THE REGULATIONS EXPLAINED.

To obtain free Customs entry of an animal of a breed for which there is a Canadian Record (other than Holstein-Friesian Cattle), the importer must forward to the Accountant, Canadian National Records, Ottawa, an application made out on a form supplied by the National Record Office, accompanied by the Foreign Certificates of Registration, and the necessary fees for registration as specified elsewhere in this report, and in addition for Import Certificate, a fee of 50 cents for Horses and Cattle and 10 cents for Swine and Sheep. The Foreign Certificate of Registration must in all cases show the Canadian importers' ownership.

The Import Certificate will be forwarded to pass Customs at the point of entry into Canada or elsewhere as the importer may direct. In no case should the importer present any certificate of registration to the Customs authorities other than the Import Certificate.

Importers should be careful to observe the veterinary requirements in connection with the importation of animals. Further information may be procured from the Veterinary Director General, Ottawa, Canada.

CANADIAN BOOKS OF RECORD.

HORSES.

Name of Breed.	Book of Record.	Name of Association.
Clydesdale	Clydesdale Stud Book of Canada.	Clydesdale Horse Association of Canada.
Hackney	Canadian Hackney Stud Book	Canadian Hackney Horse Society.
Shire	Canadian Shire Horse Stud Book	Canadian Shire Horse Association.
Percheron	Canadian Percheron Stud Book	Canadian Percheron Horse Breeders' Association.
Thoroughbred	Canadian Thoroughbred Stud Bk.	Canadian Thoroughbred Horse Society.
Belgian Draught	Canadian Belgian Draught Stud Book	Canadian Belgian Draught Horse Breeders' Association.
French Canadian	French Canadian Horse Breeders' Stud Book	French Canadian Horse Breeders' Association of Canada.
Shetland, Welsh, New Forest, Polo and Riding, Exmoor and Hackney Ponies	Canadian Pony Stud Book	Canadian Pony Society.
French Coach	Canadian French Coach Stud Book	Canadian French Coach Horse Breeders' Association.
Suffolk Horse	Canadian Suffolk Horse Stud Book	Canadian Suffolk Horse Society.
Standard Bred	Canadian Standard Bred Stud Book	Canadian Standard Bred Horse Society.

CATTLE.

Shorthorn	Dominion Shorthorn Herd Book	Dominion Shorthorn Breeders' Association.
Ayrshire	Canadian Ayrshire Herd Book	Canadian Ayrshire Breeders' Association
Hereford	Canadian Hereford Herd Book	Canadian Hereford Breeders' Association
Jersey	Canadian Jersey Cattle Club Record	Canadian Jersey Cattle Club.
Galloway	North American Galloway Herd Book	North American Galloway Association.
Aberdeen-Angus	Canadian Aberdeen-Angus Association's Record	Canadian Aberdeen-Angus Association.
Guernsey	Canadian Guernsey Herd Book.	Canadian Guernsey Breeders' Association.
French Canadian	French Canadian Cattle Breeders' Herd Book	French Canadian Cattle Breeders' Association of Canada.
Red Polled	Canadian Red Polled Herd Book	Canadian Red Polled Association.
Holstein-Friesian	Holstein-Friesian Herd Book of Canada	Holstein-Friesian Association of Canada.

SWINE.

Yorkshire, Berkshire, Tamworth, Chester White, Poland China, Duroc Jersey, Essex, Hampshire	Dominion Swine Breeders' Record	Dominion Swine Breeders' Association.

CANADIAN BOOKS OF RECORD—*Continued.*

SHEEP.

Name of Breed.	Book of Record.	Name of Association.
Shropshire, Leicester, Oxford Down, Cotswold, Lincoln, Dorset, Hampshire, Southdown, Suffolk Cheviot, Blackface.....	Canadian National Records.....	Dominion Sheep Breeders' Association

FOREIGN BOOKS OF RECORD.

IMPORT CERTIFICATES FOR ANIMALS OF A BREED FOR WHICH THERE IS NO CANADIAN RECORD.

In order to secure free Custom entry for an animal of a breed for which there is no Canadian Record, but which is recorded in a foreign record recognized as reliable, the importer must forward to the Accountant, Canadian National Records, the foreign certificate of registration accompanied by fees as follows:—For horses, cattle or asses, $2 each, for sheep, swine or goats, 50 cents each. The Import Certificate will be forwarded to pass the Customs at the point of entry into Canada or elsewhere as the importer may direct.

In no case should the importer present any certificate of registration to the Customs authorities other than the Import Certificate.

Importers should be careful to observe the veterinary requirements in connection with the importation of animals. Further information may be procured from the Veterinary Director General, Ottawa, Canada.

RECOGNIZED FOREIGN RECORDS.

HORSES.

Name of Breed.	Book of Record.	Name of Association.
Cleveland Bay.....	Cleveland Bay Stud Book.....	Cleveland Bay Horse Society of Great Britain and Ireland, Nunthrope, R. S. O., England.
Yorkshire Coach.....	Yorkshire Coach Horse Stud Book	Yorkshire Coach Horse Society of Great Britain and Ireland, Bolton Perdy, R. S. O., England.
Morgan.....	American Morgan Register.....	American Morgan Register Association, Middlebury, Vt., U.S.A.
Saddle Horse.....	American Saddle Horse Register..	American Saddle Horse Breeders' Association, Louisville, Ky.
German Coach.....	Ostfriesisches Stutbuch.....	Landwirthschaftlichen, Hauptverein fur Ostfriesland, Norden, Germany.
	Stutbuch der Munsterlandisch-Oldenburgischen Geest.....	Zuchterband des Sudlichen Zuchtgebietes Oldenburg, Germany.
Oldenburg.....	Oldenburger Stutbuch.....	Verband der Zuchter des Oldenburger eleganten schweren Kutschpferdes, Oldenburg, Germany.
Holstein Coach.....	Gestutbuch der Holsteinischen Marschen.....	Verband der Pferdezuchter in den Holsteinischen, Marschen, Holstein, Germany.
Hunter.....	Hunter Stud Book.....	Hunters' Improvement Society, 12 Hanover Square, London, England.

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RECOGNIZED FOREIGN RECORDS—*Continued.*

CATTLE.

Name of breed.	Book of record.	Name of association.
Highland	Highland Herdbook	Highland Cattle Society of Scotland, Inverness, Scotland.
Kerry & Dexter	Kerry & Dexter Herd Book	Kerry & Dexter Herd Book, Dublin, Ireland.
Sussex	Sussex Herdbook	Sussex Herdbook Society, London, England.
Devon	Davies Devon Herd Book	Devon Cattle Breeders' Society, Wiveliscombe, England.
Longhorned Cattle	Longhorned Herd Book	Longhorned Cattle Society, Atherstone, England.
Welsh Black Cattle	Welsh Black Cattle Herd Book	Welsh Black Cattle Society, Haverfordwest, Wales.
Polled Durham	American Polled Durham Herd B Book	Polled Durham Breeders' Association, Indianapolis, Ind., U.S.
Polled Hereford	National Polled Hereford Herd Book	National Polled Hereford Breeders' Association, Chicago, Ill., U.S.A.

SWINE.

Large Black Pig	Large Black Pig Society Herd Bk.	Large Black Pig Society, Ipswich, England.
Lincolnshire Curly Coated Pig	Curly Coated Pig Breeders' Herd Book	Lincolnshire Curly Coated Pig Breeders Association, Thornhayes, England

SHEEP.

Kent or Romney Marsh	Kent or Romney Marsh Flock Bk.	Kent or Romney Marsh Sheep Breeders' Association, London, W.C. England.
Wensleydale Longwool	Wensleydale Flock Book	Wensleydale Longwool Sheep Breeders' Association, Yorkshire, England.
Wensleydale Bluefaced	Wensleydale Bluefaced Flock Book	Incorporated Wensleydale Bluefaced Sheep Breeders' Association and Flock Book Society, Carperby, England.
Dartmoor	Dartmoor Sheep Breeders' Association Flock Book	Dartmoor Sheep Breeders' Association.

GOATS.

Goats	British Goat Society Herd Book.	British Goat Society, Kingston on Thames, England.
Toggenburg	Toggenburg Herd Book	Toggenburg, Club, Beefolds, Farnham, England.

ASSES.

Jacks and Jennets	Studbook Mulassier	Societe Centrale d'Agriculture des deux Sevres.
Jacks and Jennets	Studbook of Jacks & Jennets of Spain	

APPLICATIONS FOR CANADIAN REGISTRATION AND IMPORT CERTIFICATE.

In the case of cattle, sheep and swine from European countries the inspector need not make application for Registration and Import Certificate until the animals arrive at quarantine, as the quarantine period allows ample time to secure certificates before having to pass the Customs.

In the case of horses from European countries the importer should, if possible, forward his foreign certificates, along with application and fees, on a mail boat sailing before the stock is shipped. Import certificates and Canadian Certificates of Registration can then be sent to meet the horses on landing. The Canadian Certificate is necessary in order to get the reduced freight rates. In the case of late purchases, importers landing horses at Montreal or at St. John, or other Atlantic ports, may mail their applications, foreign certificates and fees on landing and then ship in bond subject to quarantine requirements, to the nearest Custom House to destination. It must in all cases be definitely stated where Import Certificates are to be forwarded.

In addition to the foreign certificate of registration, an application made out on the regular form supplied by the National Record Office, is required. The foreign certificate of registration must show the ownership of the Canadian importer. Fees for registration are indicated elsewhere in this report.

For animals imported in dam, Certificates of Service must be procured from the breeder, signed by the owner of the sire at the time of service.

The National Record Office gives special service in issuing Import Certificates. Certificates will be mailed to the importer in care of the Customs Officer at the Port of Entry, or to any other address desired.

Canadians wishing to import pure-bred animals from the United States, in order to avoid delay and trouble at the port of entry, should secure registration of the animals in the Canadian Record and Import Certificates before the animals are shipped.

In the case of swine from the United States, which the present health regulations require to be quarantined, the registration of animals may, if desired, be deferred until after the animals have arrived at quarantine.

It will be observed from paragraph 1 of the Regulations that only British subjects or persons domiciled in Canada are entitled to the privilege of free entry of animals for the improvement of stock. This does not apply to settlers who are accorded certain privileges in regard to the bringing in of settlers' effects.

Blank application forms and other information, if desired, will be furnished on application to the Accountant, National Live Stock Records, Ottawa, Canada.

CANADIAN QUARANTINE REGULATIONS.

Persons importing live stock from Europe to Canada, will find it to their advantage, to ship whenever possible, by vessels arriving at Canadian ports, as animals shipped via United States ports are liable to serious delay at the boundary, unless all necessary requirements have been complied with and full information furnished beforehand, both to this office and to the Health of Animals Branch of the Department of Agriculture.

EXTRACTS FROM QUARANTINE REGULATIONS.

Sec. 3. The following Customs ports are hereby declared to be Animals' Quarantine Stations, and all animals imported into Canada subject to quarantine must be entered through said stations, viz.:—Halifax, N.S.; St. John, N.B.; Charlottetown,

P.E.I.; Sherbrooke and St. Johns, Que.; Bridgeburg, Windsor and Sarnia, Ont.; Emerson, Gretna and Bannerman, Man.; North Portal, Wood Mountain, Big Muddy and Willow Creek, Sask.; Pendant d'Oreille, Coutts and Twin Lakes, Alta.; Gateway, Kingsgate, Rossland, Nelson, Grand Forks, Midway, Myncaster, Vancouver and Victoria, B.C.; Whitehorse, Y.T. Quebec is also declared to be an Animals' Quarantine Station in so far as importations into Canada by sea are concerned.

Sec. 4. Animals subject to inspection only, but which are not subject to quarantine, may enter through the aforesaid, and at the following ports:—Pictou, North Sydney and Yarmouth, N.S.; St. Stephens, Woodstock, McAdam Junction, Edmunston, St. Leonards, Debec Junction and Aroostook Junction, N.B.; Comin's Mills, Lake Megantic, Coaticook, Beebe Junction, Highwater, Abercorn, St. Armand, Lacolle Junction, Noyan Junction, Athelstan and St. Agnes de Dundee, Que.; Cornwall, Prescott, Morrisburg, Brockville, Kingston, Cobourg, Toronto, Niagara Falls, Sault Ste. Marie, Port Arthur, Rainy River and Fort Frances, Ont.; Snowflake, Man.; Marienthal, Sask.; Rykerts, Osoyoos, Huntingdon, Keremeos, New Westminster, White Rock and Nanaimo, B.C.

IMPORTATIONS IN GENERAL.

Sec. 5. The Minister may prohibit or regulate the importation of animals from any country or any district where he has reason to believe that contagious disease of animals exists.

Sec. 7. (*a*) Persons contemplating the importation of animals from any part of the world, except the United States and Newfoundland, must first obtain from the Minister a permit therefor. Such permits shall not be available at any port other than the one mentioned therein.

(*b*) Applications for such permits shall be in writing, and shall state the number and kind of animals for which the permit is applied, the country of origin and probable date of shipment, the port of embarkation, the port at which the animals are to be landed and the approximate date of their arrival. The statements contained therein may be required to be verified on oath, the Minister deciding in every case whether a permit will be granted.

(*c*) Animals from countries other than those above mentioned, arriving at any port in Canada without such permit shall not be admitted to Canada unless and until ordered by the Minister.

(*d*) Unless otherwise ordered by the Minister, the provisions of this section shall not apply to the importation of horses from any of the countries of Europe.

Sec. 8. The importation by sea into Canada of animals from all countries, other than the United States, Newfoundland and Mexico, is prohibited except at the ports of Victoria and Vancouver, B.C.; Quebec, Que.; St. John, N.B.; Halifax, N.S.; Charlottetown, P.E.I., and such other ports as may hereafter be indicated by the Minister.

Sec. 9. Animals imported via United States ports must be accompanied not only by the necessary health certificates from the country of origin, but also by a certificate of quarantine or inspection signed by a Veterinary Inspector of the United States Bureau of Animal Industry.

Sec. 11. All importers must certify under oath, before making Customs entry, the place of origin of the animals imported by them.

Sec. 13. All inspections of imported animals must be made in daylight.

Sec. 16. Importers of animals will be required to certify under oath that the health certificates referred to in these Regulations apply to the said animals and to no other, and that the district named is the actual one from which these animals came.

Sec. 17. Any unauthorized interference with animals after inspection, whether by substitution or otherwise, or any evasion, or misrepresentation, will be deemed a breach of these Regulations, and in addition will render the shipment liable to seizure and detention pending the orders of the Minister as to its disposal.

Sec. 19. No person shall import or introduce, or attempt to import or introduce, into Canada, any animal contrary to these Regulations or which is affected with any contagious or infectious disease, and any animal which is imported or introduced, or attempted to be imported or introduced, into Canada contrary to these Regulations or which is affected with or suspected of being affected with any contagious or infectious disease, may be forthwith destroyed, refused admission to Canada, or otherwise disposed of as the Veterinary Director General may direct.

HORSES, MULES AND ASSES.

Sec. 23. Horses, mules and asses imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no glanders, maladie du coit or other serious infectious or contagious disease affecting horses has existed in said district for a period of six months prior to their shipment.

Sec. 24. Horses, mules and asses imported from countries other than the United States, Newfoundland and Mexico, consigned to Montreal, may be, unless otherwise ordered by the Minister, inspected at that port. Such animals landing at any of the other ports named shall be inspected at such ports.

CATTLE.

Sec. 25. Cattle imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no contagious pleuropneumonia, rinderpest or foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 26. (*a*) A quarantine of thirty days shall be enforced upon cattle imported from the United Kingdom, to be counted from the date of arrival at the quarantine station.

(*b*) A quarantine of ninety days shall be enforced upon cattle imported from all other countries except the United States, Newfoundland and Mexico, to be counted from the date of clearance of the vessel carrying the same from the port at which they were embarked.

OTHER RUMINANTS.

Sec. 27. Sheep and goats imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 28. A quarantine of thirty days shall be enforced upon all sheep and goats imported from countries other than the United States, Newfoundland and Mexico, to be counted from the date of clearance of the vessel carrying the same from the port at which they were embarked.

SWINE.

Sec. 29. Swine imported from countries other than the United States, Newfoundland and Mexico, must be accompanied by the certificate of a qualified veterinarian and of the local authority of the district whence they came, that no hog cholera, swine

plague or foot and mouth disease has existed in said district for a period of six months prior to their shipment.

Sec. 30. A quarantine of thirty days shall be enforced upon all swine imported from countries other than the United States, Newfoundland and Mexico, to be counted from the date of clearance of the vessel carrying the same from the port at which they were embarked.

IMPORTATION OF ANIMALS FROM THE UNITED STATES, NEWFOUNDLAND AND MEXICO.

Sec. 31. All animals imported into the Dominion of Canada from the United States, Newfoundland and Mexico, must be accompanied by a statutory declaration or affidavit made by the owner or importer, stating clearly the purpose for which said animals are imported, viz.:—Whether for breeding purposes, for milk production, for work, for grazing, feeding or slaughter, or whether they form part of settlers' effects, or whether they are entered for temporary stay, as provided by these Regulations.

Sec. 32. Said declaration or affidavit must be presented to the Collector of Customs at the Port of Entry, who will decide whether the animals are entitled to entry under these Regulations, and who will notify the Veterinary Inspector of the Department of Agriculture in all cases where the Regulations require an inspection to be made.

ANIMALS FROM THE UNITED STATES.

HORSES, MULES AND ASSES.

Sec. 33. The importation of branded or range horses, mules and asses, other than those which are gentle and broken to harness or saddle, is prohibited.

Sec. 34. Horses, mules or asses, shall be inspected, and must be accompanied by:—

(*a*) A satisfactory certificate of mallein test dated not more than thirty days prior to the date of entry, and signed by an inspector of the United States Bureau of Animal Industry; or,

(*b*) A similar certificate from a reputable veterinarian, provided such certificate is endorsed by an inspector of the said Bureau of Animal Industry; or,

(*c*) A similar certificate from an inspector of the Canadian Department of Agriculture.

Sec. 35. When not so accompanied, such horses, mules or asses must be submitted to the mallein test either at the quarantine station where entry is made, or, under such restrictions as the Veterinary Director General may prescribe at point of destination.

Sec. 36. When tested at the Port of Entry, if any reactors are found they shall be slaughtered without compensation, or definitely marked and returned to the United States, and must not again be presented for entry. All horses, mules or asses in the same consignment shall be returned to the United States, but the non-reactors may be again presented for entry and further test after the lapse of a period of not less than fifteen days from the date of the first test, provided that satisfactory evidence is produced to the effect that they have not, during the said period, been in contact with affected animals. When tested at destination points all animals reacting to the test will be slaughtered without compensation, while those comprising the rest of the shipment will be detained in quarantine until it is shown to the satisfaction of the Veterinary Director General that they are free from disease.

Sec. 37. No compensation will, under any circumstances, be paid for horses reacting to mallein within six months after the date of their importation to Canada.

CATTLE.

Sec. 38. All cattle shall be inspected, and if so ordered by the Minister, may be detained, isolated, submitted to the tuberculin test, dipped or otherwise treated, or in default of such order, where the inspector has reason to believe or suspect that animals are affected with or have been exposed to contagious or infectious disease.

Sec. 39. Cattle for breeding purposes and milk production six months old or over, if unaccompanied by a satisfactory tuberculin test chart dated not more than thirty days prior to the date of entry and signed by a veterinarian of the United States Bureau of Animal Industry, must be detained in quarantine for one week or such further period as may be deemed necessary, and subjected to the tuberculin test; cattle reacting thereto must be returned to the United States or slaughtered without compensation .

Sec. 40. Importers may be required to furnish statutory declaration that the chart produced applies to the cattle it purports to describe and no other.

OTHER RUMINANTS.

Sec. 41. All sheep and goats shall be inspected, and, if so ordered by the Minister, may be detained, isolated, dipped or otherwise treated, or, in default of such order, where the inspector has reason to believe or suspect that the animals are affected with or have been exposed to contagious or infectious disease.

SWINE.

Sec. 42. All swine must be accompanied by a certificate signed by a veterinarian of the United States Bureau of Animal Industry, stating that neither swine plague nor hog cholera has existed within a radius of five miles of the premises in which they have been kept for a period of six months immediately preceding the date of shipment, but such swine shall nevertheless be inspected, and shall be subjected to a quarantine of thirty days before being allowed to come in contact with Canadian animals.

ANIMALS FOR EXHIBITION.

Sec. 43. Animals other than swine may be admitted on inspection at quarantine and inspection ports only, for purposes of exhibition or other temporary stay, subject to the usual Customs regulations.

REGULATIONS OF QUARANTINE.

Sec. 55. Animals in any quarantine station shall be treated and dealt with under the direction of the superintendent of the said station and all articles used for, about or in connection with the said animals shall be in like manner subject to his direction and supervision.

Sec. 56. Cattle six months old or over imported from countries other than the United States, Newfoundland and Mexico shall not be discharged from quarantine until they have been submitted to the tuberculin test by the superintendent of the quarantine or other duly authorized officer.

Sec. 57. Cattle reacting to the tuberculin test, but not showing clinical symptoms, shall be permanently marked in the right ear with the letter 'T' by the officer making the test, and may then be released at the expiry of the prescribed period of quarantine if found free from all other infectious or contagious diseases.

Sec. 58. Cattle showing clinical symptoms of tuberculosis shall be destroyed or otherwise disposed of as the Minister may direct.

Sec. 59. The Minister or the Veterinary Director General may authorize the destruction of any quarantined animal or all or any portion of the articles used in the care of the said animals, and such destruction shall take place under the supervision of the superintendent, and in the manner prescribed by him.

Sec 60. The expenses of feeding, treating and caring for animals detained in quarantine with the exception of those for the use of grounds and shelters, shall be borne by the owner or importer, and such expenses shall be paid before the animals are permitted to leave the quarantine, and in default of such payment within fourteen days after the expiration of the period of quarantine, the superintendent may, on fourteen days' notice in writing, delivered or sent by mail to the owner or importer, cause the said animals to be sold to meet the said expenses, together with the expenses of and incidental to the sale of the said animals, the balance, if any, to be handed over to the owner.

Sec. 61. No animal under quarantine shall be allowed to come in contact with any Canadian animal until duly discharged from quarantine.

Sec. 62. No animal under quarantine shall be removed from a quarantine station until duly discharged therefrom by the superintendent or other duly authorized officer.

Sec. 63. No person shall remove or attempt to remove any animal from a quarantine station without the authority of the superintendent or other duly authorized officer.

Sec. 64. No indemnity shall be allowed for any injury or loss sustained in connection with any animal while detained in quarantine.

ELIGIBILITY OF ANIMALS FOR CANADIAN RECORDS.

It is important that Canadian importers, before purchasing animals of a breed for which there is a Canadian record, ascertain if they are recorded in the proper foreign record, and if so, if they are eligible for record in Canada. Canadian registration of imported animals will not be made unless proper foreign certificate is presented, and ownership of animals properly authenticated.

Canadian records, with the exception of those for French Canadian Cattle and French Canadian Horses, which are purely Canadian, are for the most part based on the records of the countries of the origin of the breeds, but as the Canadian standard of registration is higher in some cases than the standard in the country of origin, or that of other countries, animals may or may not be eligible for entry in the Canadian records. The following will assist in arriving at the eligibility of an animal. The fees for recording animals in the Canadian records bred in other countries are indicated in each case. (These fees do not in all cases apply to the recording of Canadian bred animals.) In addition to the registration fee, 50 cents is charged for each Import certificate for Horses and Cattle and 10 cents for Sheep and Swine.

HORSES.

Clydesdale.

Animals recorded and numbered in the Clydesdale Stud Book of Great Britain and Ireland are eligible, provided their sires and dams and grandsires and granddams are also recorded and numbered therein. The breeding of many horses recorded in the Scottish Book does not come up to this standard.

Fees to members—animals imported from Great Britain, stallions, $3; mares, $2. To non-members, stallions, $4; mares, $3. Annual membership, $2. If animals

are not recorded within 30 days of importation, the fee is $25 and $50 to members and non-members respectively.

Hackney.

Stallions full registered and all mares recorded in the American Hackney Stud Book, and animals bred in Great Britain or Ireland and recorded in the English Hackney Stud Book, as follows:—

(*a*) Stallions with three top crosses of *full registered sires and with two registered dams.

(*b*) Mares with two top crosses of *full registered sires and with one registered dam.

(*c*) Mares with one top cross of *full registered sires with a registered inspected dam.

Fees to members, $2; to non-members, $4. An additional fee of $1 is charged for each ancestor recorded to complete pedigrees of animals recorded in the American Stud Book. Annual Membership, $3.

Shire.

All animals recorded in the English Shire Horse Stud Book or in the American Shire Horse Stud Book, providing their breeding complies with the Canadian standard of registration. Fees to members—animals under three years of age, $1; animals over three years of age, $2. To non-members, animals under three years of age, $2; animals over three years of age, $4. An additional fee of $1 is charged for each ancestor recorded to complete pedigrees of animals recorded in the American Stud Book.

Percheron.

All animals recorded in the Stud Book Percheron de France or in the American Percheron Stud Book, if, on investigation, their pedigrees are found to be correct. Fees to members—stallions, $3; mares, $1; to non-members—stallions, $5; mares, $2. An additional fee of 50 cents is charged for each ancestor recorded to complete pedigrees of animals recorded in the American Percheron Stud Book (Chicago). Annual Membership, $2.

No American bred Percheron will be accepted for registration unless Certificate of Registration issued by the American Percheron Society, Geo. W. Stubblefield, Union Stock Yards, Chicago, Secretary, is presented with the application.

Thoroughbred.

All animals recorded in the General Stud Book (Great Britain), American, French, Belgian, or Australian Stud Books. Fees to members, $1; to non-members, $2. Annual Membership, $2.

Belgian.

All animals recorded in the Stud Book des Chevaux de Traits Belges or in the American Register of Belgian Draught Horses. Fees to members—stallions, $3; mares, $1; to non-members—stallions, $4; mares, $2. An additional fee of 50 cents is charged for each ancestor recorded to complete pedigrees of animals recorded in the American Stud Book. Annual Membership, $2.

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* Full registered sires are those (*a*) that are recorded as such in any of the first sixteen volumes of the English Hackney Stud Book or, (*b*) those recorded since volume 16, providing they were eligible to full registry under the rules in force for entries in volume 16 of the English Hackney Stud Book.

Shetland Ponies.

All animals recorded in the Shetland Stud Book of Scotland, or the Shetland Islands Pony Stud Book, and such animals recorded in the American Shetland Pony Stud Book as trace to ancestors recorded in the Shetland Stud Book of Scotland, or the Shetland Islands Pony Stud Book. Fees to members, $1; to non-members, $2. Annual Membership, $2.

Welsh Ponies.

All animals recorded in the Welsh Pony and Cob Stud Book (Great Britain), or in the American Welsh Pony and Cob Stud Book. Fees same as Shetland Ponies.

New Forest Ponies.

Animal imported from Great Britain, recognized as pure-bred. A certificate to this effect must be furnished, signed by the breeder and certified by the Secretary of the Association for the improvement of the breed of New Forest Ponies (Great Britain). Fees same as Shetland Ponies.

Polo and Riding Ponies

All animals recorded in the Polo Section of the Polo and Riding Pony Stud Book (Great Britain). Fees same as Shetland Ponies.

Exmoor Ponies.

Animals imported from Great Britain bred by reputable breeders. Certificate of breeding signed by breeder must be furnished. Fees same as Shetland Ponies.

Hackney Ponies.

Pony stallions or mares recorded in the American Hackney Stud Book. Rules for ponies imported from Great Britain or Ireland, same as for Hackney Horses. Fees to members, $1; to non-members, 2. Annual Membership, $2.

French Coach

All animals recorded in the Stud Book Francais Registre des Chevaux de Demi-Sang, or animals recorded in the French Coach Horse Stud Book of America, or in the American French Coach Horse Register, if upon investigation, pedigrees are found to be correct and proper. Fees to members—stallions, $3; mares, $1; to non-members—stallions, $5; mares, $2. Annual Membership, $2.

Suffolk.

All animals recorded in the English Suffolk Stud Book or in the American Suffolk Horse Stud Book. Fees to members—stallions, $3; mares, $2; to non-members—stallions, $4; mares, $3. Annual Membership, $2.

Standard Bred.

All animals recorded as Standard in the American Trotting Register (Chicago). Fees to members, $1.50; to non-members, $3. Annual Membership, $2.

CATTLE.

Shorthorn.

Animals recorded or eligible for record in the Fortieth or preceding volumes of Coates English Herd Book. Animals recorded in the American Shorthorn Herd

Book providing they trace in all their crosses to named ancestors imported from Great Britain. The breeding of such animals, however, must be of the standard required by the rules of entry of the Dominion Shorthorn Breeders' Association. Many animals on record in the American Shorthorn Herd Book are not eligible for entry in the Dominion Shorthorn Herd Book. Fees to members—English animals, 75 cents; American animals, 75 cents; to non-members—English animals, $1.25; American animals, $1.25 An additional fee of 50 cents is charged for each ancestor recorded to complete pedigrees of animals recorded in the American Herd Book. All crosses back to and including those imported from Great Britain must be recorded. Annual Membership, $2.

Ayrshire.

All animals recorded in the Herd Book of the Ayrshire Cattle Herd Book Society of Great Britain and Ireland. All animals recorded in the American Ayrshire Herd Book. Fees to members—animals bred in Great Britain or Ireland, $1; American bred animals, $1; to non-members—animals bred in Great Britain or Ireland, $2; American bred animals, $2. Additional fees as follows are charged for ancestors recorded to complete pedigrees of animals recorded in the American Book. All animals back to and including those imported from Great Britain, must be recorded. For ancestors owned by applicant, $1; for ancestors not owned by applicant, 25 cents. Annual Membership, $2.

Hereford.

All animals recorded in the English Hereford Herd Book. All animals recorded in the American Hereford Herd Book. Fees to members—animals imported from Great Britain, 75 cents; animals imported from the United States, 75 cents; to non-members—animals imported from Great Britain, $2; animals imported from the United States, $2. Additional fees as follows are charged for recording ancestors to complete pedigrees of animals recorded in the American Book. All ancestors back to and including those imported from Great Britain must be recorded. To members resident in Canada, 50 cents each; to members resident in the United States, 75 cents each; to all non-members, $2 each. Annual Membership, $2.

Jersey.

All animals recorded in the Island of Jersey Herd Book. Animals recorded in the English Jersey Herd Book, providing they trace in all their crosses to animals recorded in the Island of Jersey Herd Book. Importers of Jerseys from Great Britain or the Island of Jersey must comply with the Import Regulations of the Canadian Jersey Cattle Club, which will be supplied on application. Fees to members—animals imported from Great Britain or the Island of Jersey, $1; animals bred in the United States and recorded in the American Book, 50 cents; to non-members—animals imported from Great Britain or the Island of Jersey, $1.50; animals bred in the United States and recorded in the American Book, $1. Animals bred in the United States not recorded in the American Book—to members, $1; to non-members, $1.50, if under two years of age; if over two years of age, $1.50 and $2 respectively. Annual Membership, $1.

Galloway.

Animals recorded in the Galloway Herd Book of Great Britain or the American Galloway Herd Book. Fees to members—animals under six months of age, 50 cents; animals over six months of age, $1; to non-members—animals under six months of age, $1; animals over six months of age, $1.50. Annual Membership, $1.

Aberdeen Angus.

Animals recorded in the Polled Herd Book (Scotland), or in the American Aberdeen Angus Herd Book. Fees to members—$1; to non-members, $3. Annual Membership, $2.

Guernsey.

Animals recorded in the Herd Book of the Royal Guernsey Agricultural Society, the General Herd Book of Guernsey, in the Herd Book of the English Guernsey Cattle Club Herd Register, or in the American Guernsey Cattle Club Herd Register. Animals recorded in other than the Island of Guernsey Record, must trace in all their crosses to animals imported from the Island. Fees to members, $1; to non-members, $2. Annual Membership, $1.

Red Polled.

Animals recorded in the Red Polled Herd Book of Great Britain or in the American Red Polled Herd Book. Fees to members, $1; to non-members, $2. Annual Membership, $2. An additional fee of 25 cents for each ancestor recorded to complete pedigrees of animals recorded in the American Red Polled Herd Book is charged.

SWINE.

Yorkshire.

Animals recorded in the Large White Section of the English National Pig Breeders' Association Herd Book, or in the American Yorkshire Record. Fees to members, 50 cents; to non-members, $1. An additional fee of 50 cents to members, and $1 to non-members, is charged for each ancestor recorded to complete pedigrees of animals recorded in the American Book. All ancestors back to and including those imported from Great Britain must be recorded. Annual Membership, $2.

Berkshire.

Animals recorded in the British Berkshire Herd Book or in the American Berkshire Record. Fees same as Yorkshire, including charges for recording ancestors in American Book.

Tamworth.

Animals recorded in the Tamworth Section of the English National Pig Breeders' Association Herd Book, or in the American Tamworth Swine Record. Fees same as Yorkshire, including charges for recording ancestors in American Book.

Essex.

Animals recorded in the American Essex Record. Fees same as Yorkshire, including charges for recording ancestors in American Book.

Poland China.

Animals recorded in the following United States Poland China Records—American, National, Southwestern, or Standard. Fees to members, 50 cents; non-members, $1 Annual Membership, $2.

Chester White.

Animals recorded in the O. I. C. Record (United States). Fees same as Poland China.

Duroc Jersey.

Animals recorded in the American Duroc Jersey Record, or in the National Duroc Jersey Record. Fees same as Poland China.

Hampshire.

Animals recorded in the American Hampshire Record. Fees same as Poland China.

SHEEP.

Shropshire.

Animals recorded in the English Flock Book of Shropshire Sheep, or in the American Shropshire Sheep Record. Fees to members, 50 cents; to non-members, for animals imported from Great Britain, $2; for animals bred in the United States, $1. Annual Membership fee to Dominion Sheep Breeders' Association, $1.

Lincoln.

Animals recorded in the Lincoln Longwool Sheep Breeders' Flock Book or in the American National Lincoln Sheep Breeders' Record. Fees to members, 50 cents; to non-members, $1. Annual Membership, $1.

Oxford Down.

Animals recorded in the English Oxford Down Flock Book or in the American Oxford Down Record. Fees same as Lincoln.

Cotswold.

Animals recorded in the English Cotswold Flock Book or in the American Cotswold Record. Fees same as Lincoln.

Dorset.

Animals recorded in the English Dorset Horn Flock Book or in the American Continental Dorset Club Record. Fees same as Lincoln.

Southdown.

Animals recorded in the English Southdown Flock Book or in the American Southdown Record. Fees same as Lincoln.

Hampshire Down.

Animals recorded in the English Hampshire Down Flock Book or in the American Hampshire Down Flock Record. Fees same as Lincoln.

Leicester.

Animals recorded in the English Leicester Flock Book, the English Border Leicester Flock Book, or in the American Leicester Record. Fees same as Lincoln.

Highland Blackface.

Animals imported from Great Britain from flocks recognized as pure-bred. A certificate to this effect must be furnished certified by the Secretary of the Blackface Sheep Breeders' Association. Fees same as Lincoln.

Cheviot.

Animals recorded in the English Cheviot Sheep Flock Book or in the American Cheviot Flock Book. Fees same as Lincoln.

Suffolk.

Animals recorded in the English Suffolk Flock Book or in the American Suffolk Sheep Record. Fees same as Lincoln.

UNITED STATES REGULATIONS GOVERNING THE FREE ADMISSION OF CANADIAN BRED ANIMALS FOR BREEDING PURPOSES.

Previous to January 1st, 1911, animals for breeding purposes when imported by citizens of the United States were given free customs entry when recorded in United States books of record and import certificates issued by United States record associations presented to collectors at the point of entry into the United States. Since January 1st animals are admitted on certificate of pure breeding issued from the Bureau of Animal Industry at Washington. The following are extracts from the United States Regulations—B.A.I. Order 175:—

REGULATION 1.—CERTIFICATION OF PURE BRED ANIMALS.

SECTION 2. HOW TO OBTAIN CERTIFICATES.—In order to obtain such certificates of pure breeding, importers shall conform to the following procedure:

Paragraph 1. APPLICATION FOR CERTIFICATES.—An application for certificates shall be made to the Bureau of Animal Industry on forms furnished or approved by the Department, showing the number of animals to be imported, the breed and sex, the port of shipment, the port of entry into the United States, the name of vessel by which shipped, and the probable date of arrival. This application may be signed either by the owner, the importer, or the agent, stating the name and address (in the United States) of the owner of the animal or animals.

Paragraph 2. CERTIFICATES OF PEDIGREE.—Certificates of registration and pedigree for said animal or animals, issued by the custodian of one of the books of record given in Regulation 2, section 4, of this order, shall be furnished to the Bureau of Animal Industry with the application.

Paragraph 3. VENDOR'S CERTIFICATES.—A certificate from the seller or his agent shall be furnished to the Bureau of Animal Industry with the application, giving the name and registry number of each animal sold to the importer, the date of sale, the place of purchase, and the name and address (in the United States) of the purchaser. Vendor's certificates furnished by the custodians of foreign books of record, containing the above information, may be used; otherwise, the form of vendor's certificate furnished or approved by this Department must be used.

SECTION 3. Applications will be given consideration by the Department in the order in which they are received. When the application and accompanying papers are satisfactory, certificates to that effect will be issued promptly and forwarded to the inspector of the Bureau of Animal Industry at the port of entry or at the station where the animals are quarantined, which officer will compare the animals imported with the data furnished in the foreign pedigree certificates, and where satisfactory, both the foreign pedigree certificates and the certificates of the Bureau of Animal Industry will be given to the owner, importer, or agent. All papers for animals which do not meet the requirements of this order will be retained or returned in the discretion of the Department.

SECTION 4. ELIGIBILITY OF ANIMALS.—Where the provisions of this order have been otherwise complied with, animals will be certified as pure-bred which have been fully registered in good faith in one of the books of record for one of the recognized breeds given in Regulation 2, section 4, of this order, except those which have been registered on inspection.

(NOTE.—See amendment to this section below.)

REGULATION 2.—CERTIFICATION OF RECOGNIZED BREEDS.

Section 4. Paragraph 2. RECOGNIZED BREEDS AND BOOKS OF RECORD IN CANADA.—The Canadian National Records are recognized for the following breeds, subject to the same provisions prescribed for books of record across the seas:—

HORSES.

Belgian Draught.
Clydesdale,
Hackney,
Shire,
Suffolk,
Welsh Pony and Cob.

CATTLE.

Aberdeen-Angus,
Ayrshire,
French Canadian,
Galloway,
Guernsey,
Hereford,
Jersey,
Red Polled,
Shorthorn.

SHEEP.

Cheviot,
Cotswold,
Dorset Horn.
Hampshire,
Leicester,
Lincoln,
Oxford Down,
Shropshire,
Southdown,
Suffolk.

HOGS.

Berkshire,
Duroc-Jersey,
Hampshire,
Poland-China,
Tamworth,
Yorkshire.

AMENDMENT 1 TO B. A. I. ORDER 175.

Modifying paragraph 2, section 4, regulation 2, regarding the recognition of animals registered in the Canadian National Records.

Paragraph 2, section 4, regulation 2, of the regulations issued by the Secretary of Agriculture, under date of November 25, 1910, regarding the recognition of specified breeds of horses, cattle, sheep and hogs registered in the Canadian National Records, is hereby modified so as to provide that no animal or animals registered in the Canadian National Records shall be certified by the Secretary of Agriculture as pure-bred, except those which trace, in all crosses, to registered animals in the country where the breed originated.

ONLY CITIZENS OF THE UNITED STATES MAY IMPORT FREE OF DUTY.

(Extracts from United States Treasury Department Regulations.)

IMPORTATIONS OF ANIMALS FOR BREEDING PURPOSES.

Beginning January 1, 1911, there will be required, in order to obtain the free entry of animals imported for breeding purposes under paragraph 492 of the Tariff Act of August 5, 1909, evidence as follows:—

1. The affidavit of the importer that he is a citizen of the United States and that the animals are imported specially for breeding purposes. This affidavit will be considered in connection with the circumstances of the importation, and any further evidence required which the collector may deem necessary to establish the allegations.

The fact that the animals are pure-bred, or a recognized breed, and accompanied by proper certificate, establishes their status as breeding animals. The use of such animals incidentally for driving or working is not inconsistent with the requirements for free duty.

2. A certificate from the Department of Agriculture, stating that the animals are pure-bred, of a recognized breed, and duly registered in the foreign book of record established for that breed. With this certificate there must also be produced and submitted to the collector the certificate of record and pedigree on which the certificate of the Department of Agriculture is based, together with the affidavit of the owner, agent, or importer that such animals are identical with those described in the said certificates.

In case any of the foregoing evidence cannot be furnished at the time of the arrival of the animals a voluntary bond may be given by the importer in double the amount of the estimated duties, conditioned for the production of the required evidence within six months, which bond may be extended in exceptional cases for a like period on application to the Secretary of the Treasury, and shall be cancelled only upon the production of the evidence for which it is given or upon payment of full liquidated duties. Should the importer so elect, estimated duties may be paid and a written stipulation filed with the collector within 10 days thereafter to produce the evidence within six months from the date of entry, whereupon the final liquidation will be suspended until the production of the evidence or the expiration of the six months.

It will be observed from the foregoing that only citizens of the United States may import animals free of duty and that only such animals as trace in all their crosses to animals imported from and recorded in the country of the origin of their breed are eligible for certificates of pure breeding.

The foundation of many Canadian books of record is the early importations, which in most cases were not recorded in the country from which they came, either because no foreign book had been established or because the rules in force for entry of animals in Canadian books did not at that time require foreign registration. Animals recorded in Canadian books tracing to any one of these unrecorded animals cannot go into the United States free of duty.

The Bureau of Animal Industry at Washington furnishes form of Vendor's Certificate and form on which to make application for certificate of pure breeding. An export certificate embracing these forms may be procured from the Canadian National Record Office. If application for export certificate is made the same must be accompanied by an application for the transfer of ownership to the United States purchaser.

If further information is required, communicate with the Canadian National Records, Ottawa, Canada.

LIVE STOCK PEDIGREE ACT.

The following is a copy of the Dominion Act under which Record Associations in the Canadian National System are incorporated.

An Act Respecting the Incorporation of Live Stock Record Associations.

1. This Act may be cited as the Live Stock Pedigree Act.

2. Any five or more persons who desire to associate themselves together for the purpose of keeping a record of pure-bred live stock of any distinct breed or several records each of a distinct breed of the same class of animals, may make application, in the form A in the schedule of this Act, to the Minister of Agriculture for incorporation.

2. Such application shall be in duplicate, and shall include a copy of the proposed constitution, by-laws and rules of the association.

3. The signatures to the application shall be verified by the affidavit of a subscribing witness thereto, before a notary public, commissioner for taking affidavits or justice of the peace. 63-64 V., c. 33, s. 1.

3. If the Minister approves of the application, he shall cause one of the duplicates thereof to be registered in the Department of Agriculture, and the other to be returned to the applicants with a certificate endorsed thereon and signed by him, in the Form B in the schedule to this Act. 63-64 V., c. 33, s. 2.

4. Thereupon, from the date of such certificate, the applicants and such other persons as become members of the association shall be a body corporate and politic by the name specified in the application, with the constitution, by-laws and rules included therein, and with power to hold such property as is required for the carrying on of the business of the association. 63-64 V., c. 33, s. 3.

5. Not more than one association for each distinct breed of horses, cattle, sheep or swine shall be incorporated under this Act. 63-64 V., c. 33, s. 4.

6. The constitution, by-laws and rules of the association shall provide for—

(*a*) The registration of pedigrees of pure-bred live stock;

(*b*) The suspension and expulsion of members;

(*c*) The election of officers and their duties, and the filling of vacancies;

(*d*) The mode of convening annual, general and special meetings;

(*e*) The audit of accounts;

(*f*) The location of the head office and of the branch offices if any;

(*g*) The constitution, by-laws and rules, may also provide for the exercise in conjunction with any other association or associations incorporated under this Act, of any of its powers or functions through a common officer or officers to be appointed by such associations. 63-64 V., c. 33, s. 5; 4-5 E. VII., c. 21, s. 1.

7. The constitution may be altered and any by-law or rule may be altered or repealed at a meeting of the association called for that purpose, but no such alteration or repeal shall have force or effect until it has been approved by the Minister and registered in the Department of Agriculture. 63-64 V., c. 33, s. 6.

8. The association shall cause a book to be kept by the Secretary at the head office, and by an assistant secretary at each branch office, wherein shall be written a copy of the constitution, by-laws and rules.

(2). Persons becoming members of the association may examine the said books. 63-64 V., c. 33, s. 7.

9. The association may consist of annual subscribers and life members, and the annual and life membership fees shall be fixed by the members at the annual meeting or at a meeting of the association called for that purpose.

(2). Any person who has not been expelled from the association may become a member thereof by giving or sending his name and address to the Secretary, together with the annual or life membership fee; and such person shall thereupon be entitled to the rights and privileges, and subject to the liabilities of a member as fully as if he had signed the application for the incorporation of the association. 63-64 V., c. 33, s. 8.

10. The constitutions, by-laws and rules of the association shall bind the association and the members thereof to the same extent as if each member had subscribed his name and affixed his seal thereto. 63-64 V., c. 33, s. 9.

11. The liability of each member shall be limited to the amount of his membership fees due. 63-64 V., c. 33, s. 10.

12. At the annual meeting the retiring officers shall present a full report of their proceedings and of the proceedings of the association, and a detailed statement, duly audited, of the receipts and expenditures for the previous year, and of the assets and liabilities.

(2). A copy of the said report, with a list of the members and their addresses, and a list of the officers elected, shall be sent by the Secretary to the Minister within twenty days after the annual meeting. 63-64 V., c. 33, s. 11.

13. If the association ceases for twelve consecutive months to do business as required by its constitution, by-laws and rules, or if the Minister is satisfied, after an inquiry at which the association was given due notice to appear, that the business of the association is not being properly conducted, the Minister may declare the corporate powers of the association forfeited. 63-64 V., c. 33, s. 12.

14. Any person who signs a false pedigree intended for registration, or who presents or causes another person to present a false pedigree for registration by the association, shall, upon summary conviction, upon information laid within two years from the commission of the offence, be liable to a penalty not less than one hundred dollars and not exceeding five hundred dollars for each false pedigree so signed or presented, together with the costs of prosecution. 63-64 V., c. 33, s. 13.

15. At the request of any association incorporated under this Act, authorized at the annual meeting or at a meeting called for that purpose, the Minister of Agriculture may, through an officer of his Department, thereunto authorized by him, approve, under the hand of that officer and the seal of his department, or such other seal as is adopted for that purpose, the certificates of registration issued by such association. 4-5 E. VII., c. 21, s. 2.

APPLICATION FOR INCORPORATION.

We, the undersigned, hereby apply for incorporation as an association under the provisions of the Live Stock Pedigree Act.

The name of the association is to be (name of association), and the object for which it is to be formed is to keep a record of the pedigrees of pure-bred (name of breed), and to collect, publish and preserve reliable and valuable data concerning that breed.

The names and addresses of the officers of the association are (names and addresses in full).

The constitution, by-laws and rules of the association are as follows: (Insert constitution, etc., at length).

Dated at , the day of

(Signatures of Applicants.)

I, the undersigned, solemnly swear that I know (mentioning the names of the signers known to him) and that they severally signed the foregoing application in my presence.

Sworn before me, at
this day of
19 .

(Signature.)

A. B.

THE MINISTER'S CERTIFICATE.

I certify that the within application is approved this day of , 19 , in pursuance of the Live Stock Pedigree Act.

C. D.,
Minister of Agriculture.

63-64 V., c. 33, sch. B.

APPENDIX No. XXII.

REPORT No. 2 OF THE CANADIAN RECORD OF PERFORMANCE FOR PURE-BRED DAIRY CATTLE. REGULATIONS, STANDARDS, FORMS AND RECORDS OF COWS QUALIFIED FOR REGISTRATION.

INTRODUCTION.

Since Report No. 1 of the Record of Performance was issued in 1908, the work has grown very materially. Whereas all the animals whose records are published in Report No. 1 were owned in Ontario and Quebec, yearly testing is now going on in all the provinces except Manitoba and Saskatchewan, although few have yet qualified for registration in the outlying provinces. A review of this report will show that Ayrshire, Holstein, French Canadian, and Jersey cows have qualified and their records have been registered. A number of Guernseys are under test but have not completed a year's work.

Up to March 31, 1910, 1,081 cows had been entered for the test, made up as follows: Ayrshires, 572; Holsteins, 421; French Canadians, 58; Jerseys, 17; and Guernseys, 13. Up to date, 181 have qualified for registration, and a large number are still under test.

THE VALUE OF THE YEARLY TEST.

The value of tests for full milking periods of cows that are to be kept for breeding is being more and more appreciated. Ever since stock breeding has been carried on in a systematic way it has been well understood that qualities or characteristics of parents are perpetuated in the offspring. For many generations this law was applied to the perpetuation of form and external markings. It is now recognized that a cow may be ever so perfect in form and colour but unless she can return a profit in milk for the food she consumes, she fails to possess practical value. It is to accentuate and perpetuate the quality of heavy and rich milk giving by the year while producing a calf annually, that the Record of Performance test is applied to cows of the pure breeds. That Canadian breeders appreciate the value of this work is shown by the increasing number of cows under test and the advanced market value of cows registered on production as also of their offspring and other related animals. An appreciation of this has extended to Scotland, the home of the Ayrshire breed, where a system of testing herds for full milking periods has been very generally adopted. A herd which has been under test for a number of years and which has been built up accordingly has been compared by a correspondent of the *Scottish Farmer* with an untested herd. The owner of the former by selecting his bulls from good milking cows, and disposing of his poorest producers, has brought his herd up to an average production in 1909 of 900 gallons per cow, in an average lactation period of forty-two weeks.

That, at 13½ cents per gallon, gives a return of about $125 per cow for milk. The owner of the other herd, following the old method of selecting bulls that pleased his eye from cows of good form and having 'show' udders, obtains an average of only 440 gallons of milk per cow in an average lactation period of forty-two weeks. This at 13½ cents per gallon gives a return of about $60 per cow, or about one-half the value of the product of the other herd. It is stated that the cost of feeding the two herds per head was about equal, amounting during the winter months to about 22 cents per cow per day.

The system of yearly tests as compared with seven day, or even thirty day tests, has enormous advantages. Records for the shorter periods are too often spurt records made under forced conditions following a careful and often expensive system of preparation. Discussing this question in *Hoard's Dairyman,* Prof. Eckles of Missouri Agricultural College puts it thus:—

1. A seven-day test is too short to give a fair estimate of the production of a cow for a year.

2. Preparing cows for seven-day tests by long dry periods before calving, and selecting breeding animals on the basis of seven-day records tends towards developing cows that will milk heavily for a short time but will not be persistent.

3. A seven-day test, as carried on by the most skillful breeders, results in an abnormally high percentage of fat.

Prof. Eckles arrives at his conclusion after a thorough investigation of the subject with cows in the Agricultural College herd. In tables, he shows that highly fitted cows gave abnormally high fat tests for seven days, high tests for two to three weeks, soon afterwards coming to their normal, or average, test for the year. One cow referred to, coming in after a normal rest and moderate feeding, gave on the sixth day, milk testing 2·8 per cent of fat which was her average for her full milking period. The following year she was rested three months and fattened to weigh some 300 pounds above her normal weight. After calving, her milk on the 3rd day tested 5·67 per cent, 6th day 4·13 per cent, and on the 17th day 2·8 per cent, which was the same as she gave on the 17th day after calving the previous year. Concluding his article Prof. Eckles says:—

"Breeders in general should be in possession of the facts as to how these high percents of fat are obtained in order that all may have an equal chance to make such records, and also that too great importance will not be attached, in selecting breeding animals, to the fact that some ancestor has shown a high percent of fat in a seven-day test."

It might be pointed out that the observations of Prof. Eckles are borne out in the work of the Record of Performance. Occasionally a cow, at her first test after calving, gives milk richer in fat than her average for the year, but in practically every such case the cow has calved in an unusually high condition of flesh and after a lengthy period of rest. It is for this reason that breeders are encouraged to continue testing the same cows year after year as in this way the actual yielding powers of cows kept under normal conditions of breeding and feeding are ascertained.

In addition to the records of cows that have qualified by reason of production and breeding for registration in the Canadian Record of Performance, there are also given in this report, the records of two bulls that have fulfilled the requirements for registration in having four daughters in the Record of Performance each from a different dam.

RULES AND REGULATIONS.

Following are the rules and regulations governing the Record of Performance tests:—

Scope of Tests.

All tests will be for a period not exceeding 365 consecutive days.

Eligibility of Animals.

All animals entered for the test must previously be registered in the Canadian Herd Book, for the breed to which they belong.

Classification of Animals.

Cows from 2 to 3 years old shall be in a class known as 2-year-old.
Cows from 3 to 4 years old shall be in a class known as 3-year-old.
Cows from 4 to 5 years old shall be in a class known as 4-year-old.
Cows five years old and over shall be in a class known as mature.

In the 4-year-old class and the mature class, no cow will be accepted for entry if the beginning of her previous lactation period was more than fifteen months before the commencement of test. Every cow under test must drop a calf within fifteen months after the beginning of her testing period, in order to qualify for registration of performance.

No milk from a second freshening within the 365 days will be considered in a test.

Duties of Owner.

It is desirable that entries of cows for test be made before calving. In no case will entries be accepted if not mailed within thirty days after calving.

The owner of a cow entered in the test shall weigh, or cause to be weighed, each milking and keep a correct record of the same on forms furnished for the purpose.

At the end of each month the owner shall report on forms furnished for the purpose:—

(*a*) A record of the weights of each milking, with the total yield of milk from each cow for the month.

(*b*) An approximate statement of the amount and kinds of feed given, and data concerning stabling and care given the animals.

NOTE.—Monthly reports should be mailed within ten days after each monthly period. Such reports must reach the office of the Live Stock Commissioner before the end of the succeeding month.

At the end of the year the owner shall send on forms furnished for the purpose, a compiled report of the years' milk record taken from the monthly reports and sworn to before a notary public or justice of the peace.

The owner of a cow entered in the test shall provide board and lodging for the inspector during his official visits and shall convey him, when leaving, to the railway station, or the next farm to be visited, free of charge.

Duties of Inspectors.

An inspector will visit the stable at least eight times during the year, at irregular intervals and unannounced. He shall remain for at least two full days, covering all the milkings of that period, at each visit. During this time he shall weigh the milk of each cow under test, at each milking, and take samples of each for composite sample for a Babcock test. These tests shall be the basis for computing the record. He shall see that the samples are in no manner interfered with; when not under the inspector's eye the samples must be under lock and key or sealed. The inspector may insist upon only one of the animals under test being milked at a time during inspection.

The inspector shall take a copy of the owner's milk record for the two days immediately preceding his visit. Dates of calving, service, &c., must be recorded by him. As complete a statement as possible of the feed given should be reported. Any sickness of cows and other disturbing influences shall be noted. If such sickness of an animal should occur at the time of a visit the inspector may defer the test of this animal to another date.

The inspector must send to the Live Stock Commissioner, Ottawa, as soon as possible after each visit, a report of said visit on forms furnished for the purpose.

A report of the performance of each animal will be forwarded to the Secretary of the Canadian Association representing the breed at the conclusion of the testing period.

The Dominion Department of Agriculture undertakes the supervision of these yearly tests of cows only through the various breed associations. Only such cows will be tested as are of the breeds, whose respective associations have officially recognized the tests as outlined, and have agreed to publish in connection with their Herd Book the records of the animals fulfilling the standards required.

Application for Test.

Application for the test should be made before calving and must be mailed within thirty days after calving to the secretary of the Canadian Association for the breed to which the animal belongs, and accepted by him as eligible.

Upon receipt of said application, signed by said secretary, the Live Stock Commissioner will forward to the address of the applicant blank forms and other information and arrange for official inspection.

The above rules and requirements are subject to change at the discretion of the Minister of Agriculture.

J. G. RUTHERFORD,
Live Stock Commissioner.

THE STANDARDS FOR REGISTRATION.

AYRSHIRE.

Bulls.—Admitted after having four daughters in the Record of Performance, each from a different dam.

Cows.—Admitted after fulfilling the following requirements of production and breeding as supervised by the Live Stock Branch of the Department of Agriculture.

All cows admitted must equal or exceed both the records specified below:—

	Lbs. Milk.	Lbs. Butter Fat.
Two-year-old class	5,500	198
Three-year-old class	6,500	234
Four-year-old class	7,500	270
Mature class	8,500	306

The percentage of butter fat shall be determined by Babcock test.

Year's Milk Record.—If the test be commenced the day the animal is two years old or previous to that day, she must produce within 365 consecutive days from the date, 5,500 pounds of milk. For each day the animal is over two years old at the beginning of her year's test, the amount of milk she will be required to produce in the year will be determined by adding 2·75 pounds for each such day to the 5,500 pounds required when in the two-year-old class. This ratio is applicable until the

animal is five years old, when the required amount will have reached 8,500 pounds which will be the minimum amount of milk required of all cows five years old and over.

Year's Butter Fat Record.—If test be commenced the day the animal is two years old, or previous to that day, she must produce within 365 consecutive days from that date, 198 pounds of butter fat. For each day the animal is over two years old at the beginning of her year's test, the amount of butter fat she will be required to produce in one year will be determined by adding ·1 (one tenth) of a pound for each such day to the 198 pounds required when in the two-year-old class. This ratio is applicable until the animal is five years old when the required amount will have reached 306 pounds, which will be the minimum amount of butter fat required of all cows five years old and over.

Every cow accepted for registration of performance must drop a calf within fifteen months after the commencement of the test. In the four-year-old class and the mature class, no cow will be accepted for registration of performance if the beginning of her previous lactation period was more than fifteen months before the commencement of the test.

All applications for the test must be mailed to W. F. Stephen, Huntingdon, Quebec, secretary of the Canadian Ayrshire Breeders' Association.

FRENCH CANADIAN.

Bulls.—Admitted after having four daughters in the Record of Performance, each from a different dam.

Cows.—Admitted after fulfilling the following requirements of production and breeding as supervised by the Live Stock Branch of the Department of Agriculture.

All cows admitted must equal or exceed both the records specified below:—

	Lbs. Milk.	Lbs. Butter Fat.
Two-year-old class	4,400	198
Three-year-old class	5,200	234
Four-year-old class	6,000	270
Mature class	6,800	306

The percentage of butter fat shall be determined by Babcock test.

Year's Milk Record.—If the test be commenced the day the animal is two years old or previous to that day, she must produce within 365 consecutive days from that date, 4,400 pounds of milk. For each day the animal is over two years old at the beginning of her year's test, the amount of milk she will be required to produce in the year will be determined by adding 2·2 pounds for each such day to the 4,400 pounds required when in the two-year-old class. This ratio is applicable until the animal is five years old, when the required amount will have reached 6,800 pounds which will be the minimum amount of milk required of all cows five years old and over.

Year's Butter Fat Record.—If test be commenced the day the animal is two years old or previous to that day, she must produce within 365 consecutive days from that date, 198 pounds of butter fat. For each day the animal is over two years old at the beginning of her year's test, the amount of butter fat she will be required to produce in one year will be determined by adding ·1 (one-tenth) of a pound for each such day to the 198 pounds required when in the two-year-old class. This ratio is applicable until the animal is five years old when the required amount will have reached 306 pounds, which will be the minimum amount of butter fat required of all cows five years old and over.

Every cow accepted for registration of performance must drop a calf within fifteen months after the commencement of the test. In the four-year-old class and the mature class, no cow will be accepted for registration of performance if the beginning of her previous lactation period was more than fifteen months before the commencement of the test.

All applications for the test must be mailed to Dr. J. A. Couture, 49 Garden St., Quebec, secretary of the French-Canadian Cattle Breeders' Association.

GUERNSEY.

Bulls.—Admitted after having four daughters in the Record of Performance, each from a different dam.

Cows.—Admitted after fulfilling the following requirements of production and breeding as supervised by the Live Stock Branch of the Department of Agriculture.

All cows admitted must equal or exceed both the records specified below:—

	Lbs. Milk.	Lbs. Butter Fat.
Two-year-old class	5,000	200
Three-year-old class	6,000	240
Four-year-old class	7,000	280
Mature class	8,000	320

The percentage of butter fat shall be determined by Babcock test.

Year's Milk Record.—If test be commenced the day the animal is two years old, or previous to that date, she must produce within 365 consecutive days from that date, 5,000 lbs. of milk. For each day the animal is over two years old at the beginning of her year's test, the amount of milk she will be required to produce in the year will be determined by adding 2·75 lbs. for each such day to the 5,000 lbs. required when in the two-year-old class. This ratio is applicable until the animal is five years old, when the required amount will have reached 8,000 lbs., which will be the minimum amount of milk required of all cows five years old or over.

Year's Butter Fat Record.—If test be commenced the day the animal is two years old or previous to that day, she must produce within 365 consecutive days from that date, 200 lbs. of butter fat. For each day the animal is over two years old at the beginning of her year's test, the amount of butter fat she will be required to produce in one year will be determined by adding ·11 (eleven one-hundredths) of a pound for each such day to the 200 lbs. required when in the two-year-old class when the required amount will have reached 320 lbs. which will be the minimum amount of butter fat required of all cows five years old and over.

Every cow accepted for registration of performance must drop a calf within fifteen months after the commencement of the test. In the four-year-old class and the mature class, no cow will be accepted for registration of performance if the beginning of her previous lactation period was more than fifteen months before the commencement of the test.

All applications for the test must be mailed to Howard W. Corning, Chegoggin, N.S., secretary of the Canadian Guernsey Breeders' Association.

HOLSTEIN-FRIESIAN.

Bulls.—Admitted after having four daughters in the Record of Performance, each from a different dam.

Cows.—Admitted after fulfilling the following requirements of production and breeding as supervised by the Live Stock Branch of the Department of Agriculture.

All cows admitted must equal or exceed both the records specified below:—

	Lbs. Milk.	Lbs. Butter Fat.
Two-year-old class	7,500	255
Three-year-old class	8,500	289
Four-year-old class	9,500	323
Mature class	10,500	357

The per cent of butter fat shall be determined by Babcock test.

Year's Milk Record.—If the test be commenced the day the animal is two years old, or previous to that day, she must produce within 365 consecutive days from that date 7,500 lbs. of milk. For each day the animal is over two years old at the beginning of her year's test the amount of milk she will be required to produce in the year will be determined by adding 2·75 lbs. for each such day to the 7,500 lbs. required when in the two-year-old class. This ratio is applicable until the animal is five years old, when the required amount will have reached 10,500 lbs. which will be the minimum amount of milk required of all cows five years old or over.

Year's Butter Fat Record.—If the test be commenced the day the animal is two years old or previous to that day, she must produce within 365 consecutive days from that date, 255 lbs. of butter fat. For each day the animal is over two years old at the beginning of her year's test, the amount of butter fat she will be required to produce in one year will be determined by adding ·0931 of a lb. for each day to the 255 lbs. required when in the two-year-old class. This ratio is applicable until the animal is five years old when the required amount will have reached 357 lbs., which will be the minimum amount of butter fat required of all cows five years old and over.

Every cow accepted for registration of performance must drop a calf within fifteen months after the commencement of the test. In the four-year-old class and the mature class, no cow will be accepted for registration of performance if the beginning of her previous lactation period was more than fifteen months before the commencement of the test.

All applications for the test must be mailed to G. W. Clemons, St. George, Ont., secretary of the Canadian Holstein-Friesian Breeders' Association.

JERSEY.

Bulls.—Admitted after having four daughters in the Record of Performance, each from a different dam.

Cows.—Admitted after fulfilling the following requirements of production and breeding as supervised by the Live Stock Branch of the Department of Agriculture.

All cows admitted must equal or exceed both records specified below:—

	Lbs. Milk.	Lbs. Butter Fat.
Two-year-old class	5,500	218
Three-year-old class	6,500	257
Four-year-old class	7,500	297
Mature class	8,500	337

The percentage of butter fat shall be determined by Babcock test.

Year's Milk Record.—If test be commenced the day the animal is two years old, or previous to that day, she must produce within 365 consecutive days from that date, 5,500 lbs. of milk. For each day the animal is over two years old at the beginning of the year's test, the amount of milk she will be required to produce in the year will be determined by adding 2·75 lbs., for each such day to the 5,500 lbs. required when in the two-year-old class. This ratio is applicable until the animal is five years old, when the required amount will have reached 8,500 lbs., which will be the minimum amount of milk required of all cows five years old or over.

Year's Butter Fat Record.—If test be commenced the day the animal is two years old or previous to that day, she must produce within 365 consecutive days from that date, 218 lbs., of butter fat. For each day the animal is over two years old at the beginning of her year's test the amount of butter fat she will be required to produce in one year will be determined by adding ·11 (eleven one-hundredths) of a pound for each such day to 218 lbs., required when in the two-year-old class when the required amount will have reached 337 lbs., which will be the minimum amount of butter fat required of all cows five years old and over.

Every cow accepted for registration of performance must drop a calf within fifteen months after the commencement of the test. In the four-year-old class and the mature class, no cow will be accepted for registration of performance if the beginning of her previous lactation period was more than fifteen months before the commencement of the test.

All applications for the test must be mailed to R. Reid, Berlin, Ont., secretary of the Canadian Jersey Cattle Club.

AYRSHIRE.

COWS FIVE YEARS OLD AND OVER.

Production required for registration—milk, 8,500 lbs.; fat, 306 lbs.

No. 38 C. R. of P.—**Dolly Dutton of Ste. Annes.** Reg. No. 10005.

Breeder—R. Redford, Ste. Anne de Bellevue, Que.
Owners—A. C. Wells & Son, Sardis, B.C.
Test commenced—December 25, 1907.
Age at commencement of test—9 years.
Date of calving—December 25, 1907.
Date of previous calving—November 16, 1906.
Date of calving after test—December 21, 1908.
Total production—milk, 10,424·5 lbs.; fat, 440·84 lbs.
Average per cent of fat, 4·23; days in milk, 350.

No. 41 C. R. of P.—**Kirsty 2nd of Neidpath.** Reg. No. 10125.

Breeder—W. W. Ballantyne, Stratford, Ont.
Owner—W. W. Ballantyne, Stratford, Ont.
Test commenced—August 13, 1907.
Age at commencement of test—8 years.
Date of calving—August 11, 1907.
Date of previous calving—September 13, 1906.
Date of calving after test—October 30, 1908.
Total production—milk, 9,521·2 lbs.; fat, 381·95 lbs.
Average per cent of fat—4·00; days in milk, 344.

No. 42 C. R. of P.—**Bertie of Springhill.** Reg. No. 8736.

Breeders—Robert Hunter & Sons, Maxville, Ont.
Owners—Robert Hunter & Sons, Maxville, Ont.
Test commenced—March 4, 1908.
Age at commencement of test—13 years.
Date of calving—March 1, 1908.
Date of previous calving—March 9, 1907.
Date of calving after test—January 20, 1909.
Total production—milk, 10,448·25 lbs.; fat, 382·26 lbs.
Average per cent of fat, 3·66; days in milk, 321.

No. 43 C. R. of P.—**Little Queen 2nd.** Reg. No. 9239.
Breeders—Wm. Stewart & Son, Menie, Ont.
Owners—A. C. Wells & Son, Sardis, B.C.
Test commenced—December 27, 1907.
Age at commencement of test—9 years.
Date of calving—December 20, 1907.
Date of previous calving—September 2, 1906.
Date of calving after test—November 29, 1908.
Total production—milk, 9,397 lbs.; fat, 375·44 lbs.
Average per cent of fat, 4·00; days in milk, 310.

No. 47 C. R. of P.—**Barton Princess.** Reg. No. 9273.
Breeder—J. A. R. Anderson, Hamilton, Ont.
Owner—A. S. Turner, Ryckman's Corners, Ont.
Test commenced—February 12, 1908.
Age at commencement of test—10 years.
Date of calving—February 11, 1908.
Date of previous calving—December 9, 1906.
Date of calving after test—December 22, 1908.
Total production—milk, 9,580·5 lbs.; fat, 381·35 lbs.
Average per cent of fat, 4·00; days in milk, 331.

No. 49 C. R. of P.—**Nellie Gray of Hickory Hill.** Reg. No. 15332.
Breeder—N. Dyment, Rural Route No. 2, Hamilton, Ont.
Owner—N. Dyment, Rural Route No. 2, Hamilton, Ont.
Test commenced—January 5, 1908.
Age at commencement of test—6 years.
Date of calving—January 4, 1908.
Date of previous calving—November 3, 1906.
Date of calving after test—March 9, 1909.
Total production—milk, 9,981 lbs.; fat, 402·88 lbs.
Average per cent of fat, 4·03; days in milk, 330.

No. 50 C. R. of P.—**Neidpath Rose 3rd.** Reg. No. 10126.
Breeder—W. W. Ballantyne, Stratford, Ont.
Owner—W. W. Ballantyne, Stratford, Ont.
Test commenced—April 23, 1908.
Age at commencement of test—9 years.
Date of calving—April 20, 1908.
Date of previous calving—March 6, 1907.
Date of calving after test—June 16, 1909.
Total production—milk, 9,037·5 lbs.; fat, 367·40 lbs.
Average per cent of fat, 4·06; days in milk, 354.

No. 55 C. R. of P.—**Burnside Brown Queen 2nd.** Reg. No. 27192.
Breeder—R. R. Ness, Howick, Que.
Owner—Gus. A. Langelier, Cap Rouge, Que.
Test commenced—September 21, 1908.
Age at commencement of test—7 years.
Date of calving—September 19, 1908.
Date of previous calving—October 2, 1907.
Date of calving after test—November 1, 1909.
Total production—milk, 8,592 lbs.; fat, 353·94 lbs.
Average per cent of fat—4·10; days in milk, 309.

No. 59 C. R. of P.—**White Heather.** Reg. No. 16978.
Breeders—Alex. Hume & Co., Menie, Ont.
Owner—James Begg, St. Thomas, Ont.
Test commenced—November 7, 1908.
Age at commencement of test—5 years and 206 days.
Date of calving—November 4, 1908.
Date of previous calving—November 10, 1907.
Date of calving after test—January 16, 1910.
Total production—milk, 9,501·5 lbs.; fat, 363·54 lbs.
Average per cent of fat—3·82 ; days in milk, 297.

No. 60 C. R. of P.—**Nellie's Jewel.** Reg. No. 16871.
Breeders—Alex. Hume & Co., Menie, Ont.
Owner—James Begg, St. Thomas, Ont.
Test commenced—November 30, 1908.
Age at commencement of test—5 years and 228 days.
Date of calving—November 26, 1908.
Date of previous calving—November 4, 1907.
Date of calving after test—February 12, 1910.
Total production—milk, 9,093·5 lbs.; fat, 394·64 lbs.
Average per cent of fat, 4·34; days in milk, 276.

No. 70 C. R. of P.—**Primrose of Tanglewyld.** Reg. No. 15943.
Breeders—James McCormack & Son, Rockton, Ont.
Owners—Wooddisse Bros., Rothsay, Ont.
Test commenced—November 12, 1908.
Age at commencement of test—6 years.
Date of calving—November 12, 1908.
Date of previous calving—December 2, 1907.
Date of calving after test—December 21, 1909.
Total production—milk, 13,536 lbs.; fat, 529·08 lbs.
Average per cent of fat, 3·90; days in milk, 356.

No. 75 C. R. of P—**Dairymaid,** Reg. No. 13847.
Breeders—Alex. Hume & Co., Menie, Ont.
Owner—H. C. Hamill, Box Grove, Ont.
Test commenced—January 18, 1909.
Age at commencement of test—8 years.
Date of calving—January 15, 1909.
Date of previous calving—December 28, 1907.
Date of calving after test—February 28, 1910.
Total production—milk, 8,629·5 lbs.; fat 378·12 lbs.
Average per cent of fat, 4·38; days in milk, 305.

No. 76 C. R. of P.—**Scotland Princess 2nd,** Reg. No. 16385.
Breeder—W. M. Smith, Scotland, Ont.
Owner—A. S. Turner, Ryckman's Corners, Ont.
Test commenced—December 18, 1908.
Age at commencement of test—7 years.
Date of calving—December 17, 1908.
Date of previous calving—October 2, 1907.
Date of calving after test—February 22, 1910.
Total production—milk, 10,182·75 lbs.; fat, 461·02 lbs.
Average per cent of fat—4·53; days in milk, 365.

No. 78 C. R. of P.—**Myrtle**, Reg. No. 12274.
Breeder—J. A. James, Nilestown, Ont.
Owner—E. Cohoon, Harrietsville, Ont.
Test commenced—March 26, 1909.
Age at commencement of test—9 years.
Date of calving—March 26, 1909.
Date of previous calving—March 14, 1908.
Date of calving after test—March 17, 1910.
Total production—milk, 9,943·8 lbs.; fat, 328·19 lbs.
Average per cent of fat, 3·30; days in milk, 305.

No. 81 C. R. of P.—**Marjorie**, Reg. No. 16535.
Breeder—Wm. Stroyan, Culcaigrie, Twynholm, Scot.
Owner—Director Experimental Farms, Ottawa, Ont.
Test commenced—January 25, 1909.
Age at commencement of test—6 years.
Date of calving—January 22, 1909.
Date of previous calving—January 29, 1908.
Date of calving after test—February 14, 1910.
Total production—milk, 10,783·75 lbs.; fat, 461·26 lbs.
Average per cent of fat, 4·28; days in milk, 324.

No. 83 C. R. of P.—**Annie Laurie 2nd**, Reg. No. 15588.
Breeders—H. and J. McKee, Norwich, Ont.
Owner—E. Cohoon, Harrietsville, Ont.
Test commenced—January 31, 1909.
Age at commencement of test—7 years.
Date of calving—January 30, 1909.
Date of previous calving—November 2, 1907.
Date of calving after test—March 23, 1910.
Total production—milk, 15,134·5 lbs.; fat, 598·45 lbs.
Average per cent of fat, 3·95; days in milk, 365.

No. 85 C. R. of P.—**Mariea**, Reg. No. 15136.
Breeder—John Hamilton, Grande Freniere, Que.
Owner—Hon. W. Owens, Montebello, Que.
Test commenced—January 23, 1909.
Age at commencement of test—6 years and 298 days.
Date of calving—January 23, 1909.
Date of previous calving—November, 1907.
Date of calving after test—February 26, 1910.
Total production—milk, 11,428 lbs.; fat, 418·37 lbs.
Average per cent of fat, 3·66; days in milk, 365.

COWS FOUR YEARS OLD AND UNDER FIVE.

No. 48 C. R. P.—**Snowflake of Hickory Hill**, Reg. No. 23481.
Breeder—N. Dyment, Rural Route, No. 2, Hamilton, Ont.
Owner—N. Dyment, Rural Route No. 2, Hamilton, Ont.
Test commenced—January 1, 1908.
Age at commencement of test—4 years and 136 days.
Date of calving—December 31, 1907.
Date of previous calving—November 15, 1906.
Date of calving after test—March 17, 1909.

Total production—milk, 9,182·05 lbs.; fat, 362·41 lbs.
Average per cent of fat, 3·95; days in milk, 365.
Production required for registration—milk, 7,874 lbs.; fat, 283·5 lbs.

No. 52 C. R. of P.—**Lady Menie**, Reg. No. 18727.
Breeders—Wm. Stewart & Son, Menie, Ont.
Owners—Wm. Stewart & Son, Menie, Ont.
Test commenced—January 27, 1908.
Age at commencement of test—4 years and 22 days.
Date of calving—January 25, 1908.
Date of previous calving—October 28, 1907.
Date of calving after test—April 21, 1909.
Total production—milk, 8,005 lbs.; fat, 297·80 lbs.
Average per cent of fat, 3·72; days in milk, 364.
Production required for registration—milk, 7,560·5 lbs.; fat, 272·2 lbs.

No. 72 C. R. of P.—**Bonnie Doon**, Reg. No. 19437
Breeders—Wooddisse Bros., Rothsay, Ont.
Owners—Wooddisse Bros., Rothsay, Ont.
Test commenced—December 27, 1908.
Age at commencement of test—4 years and 220 days.
Date of calving—December 26, 1908.
Date of previous calving—January 20, 1908.
Date of calving after test—February 11, 1910.
Total production—milk, 9,357 lbs.; fat, 400·36 lbs.
Average per cent of fat, 4·28; days in milk, 355.
Production required for registration—milk, 8,105 lbs.; fat, 291·7 lbs.

No. 74 C. R. of P.—**Molly**, Reg. No. 27600.
Breeder—D. A. James, Nilestown, Ont.
Owner—E. Cohoon, Harrietsville, Ont.
Test commenced—April 20, 1909.
Age at commencement of test—4 years and 9 days.
Date of calving—April 18, 1909.
Date of previous calving—May 10, 1908.
Date of calving after test—February 10, 1910.
Total production—milk, 11,268·6 lbs.; fat, 372·42 lbs.
Average per cent of fat, 3·33; days in milk, 296.
Production required for registration—milk, 7,525 lbs.; fat, 271 lbs.

No. 80 C. R. of P.—**Ethel Belle**, Reg. No. 21349
Breeder—James Clark, Campbellford, Ont.
Owner—James Begg, St. Thomas, Ont.
Test commenced—January 16, 1909.
Age at commencement of test—4 years and 270 days.
Date of calving—January 13, 1909.
Date of previous calving—February 15, 1908.
Date of calving after test—March 5, 1910.
Total production—milk, 9,258 lbs.; fat, 385·66 lbs.
Average per cent of fat, 4·15; days in milk, 350.
Production required for registration—milk, 8,242·5 lbs.; fat, 296·7 lbs.

No. 82 C. R. of P.—**Lassie of Highlands**, Reg. No. 21491.
Breeder—J. H. Douglas, Warkworth, Ont.
Owner—Frank H. Harris, Mt. Elgin, Ont.

Test commenced—February 10, 1909.
Age at commencement of test—4 years and 33 days.
Date of calving—February 7, 1909.
Date of previous calving—March 6, 1908.
Date of calving after test—March 29, 1910.
Total production—milk, 9,309·1 lbs.; fat, 410·54 lbs.
Average per cent of fat, 4·41; days in milk, 350.
Production required for registration—milk, 7,590 lbs.; fat, 273 lbs.

No 88 C. R. of P.—**Cho of the Willows**, Reg. No. 20934.
Breeders—Dawes & Co., Lachine, Que.
Owner—Wm. Brown, Howick, Que.
Test commenced—May 9, 1909.
Age at commencement of test—4 years and 152 days.
Date of calving—May 8, 1909.
Date of previous calving—April 27, 1908.
Date of calving after test—April 1, 1910.
Total production—milk, 8,614 lbs.; fat, 330·66 lbs.
Average per cent of fat, 3·84; days in milk, 284.
Production required for registration—milk, 7,918 lbs.; fat, 285 lbs.

COWS THREE YEARS OLD AND UNDER FOUR.

No. 40 C. R. of P.—**Woodroffe Lady Nancy**, Reg. No. 21454.
Breeder—J. G. Clark, Ottawa, Ont.
Owners—A. C. Wells & Son, Sardis, B.C.
Test commenced—August 4, 1907.
Age at commencement of test—3 years and 228 days.
Date of calving—August 1, 1907.
Date of previous calving—July 10, 1906.
Date of calving after test—August 26, 1908.
Total production—milk, 7,197·5 lbs.; fat, 303·91 lbs.
Average per cent of fat, 4·22; days in milk, 302.
Production required for registration—milk, 7,127 lbs.; fat, 256·8 lbs.

No. 44 C. R. of P.—**Isaleigh Nancy 1st**, Reg. No. 20525.
Breeder—J. N. Greenshields, Danville, Que.
Owner—J. N. Greenshields, Danville, Que.
Test commenced—December 20, 1907.
Age at commencement of test—3 years and 136 days.
Date of calving—December 15, 1907.
Date of previous calving—November 6, 1906.
Date of calving after test—March 13, 1909.
Total production—milk, 8,184 lbs.; fat, 316·16 lbs.
Average per cent of fat, 3·86; days in milk, 288.
Production required for registration—milk, 6,874 lbs.; fat, 247 lbs.

No. 45 C. R. of P.—**Beauty of Shannon Bank**, Reg. No. 23519.
Breeder—W. H. Tran, Cedar Grove, Ont.
Owner—W. H. Tran, Cedar Grove, Ont.
Test commenced—February 5, 1908.
Age at commencement of test—3 years and 57 days.
Date of calving—January 30, 1908.
Date of previous calving—December 10, 1906.

Date of calving after test—April 1, 1909.
Total production—milk, 7,677 lbs.; fat, 354·47 lbs.
Average per cent of fat, 4·62; days in milk, 327.
Production required for registration—milk, 6,656·75 lbs.; fat, 240 lbs.

No. 58 C. R. of P.—**Miss Orlia**, No. 20098.
Breeder—J. N. Greenshields, Danville, Que.
Owner—Gus. A. Langelier, Cap Rouge, Que.
Test commenced—June 1, 1908.
Age at commencement of test—3 years and 150 days.
Date of calving—May 29, 1908.
Date of previous calving—August 4, 1907.
Date of calving after test—August 23, 1909.
Total production—milk, 7,158 lbs.; fat, 333·33 lbs.
Average per cent of fat, 4·65; days in milk, 365.
Production required for registration—milk, 6,912·5 lbs.; fat, 249 lbs.

No. 64 C. R. of P.—**Canadian Princess**, Reg. No. 20108.
Breeder—W. M. Smith, Scotland, Ont.
Owner—A. S. Turner, Ryckmans Corners, Ont.
Test commenced—September 25, 1908.
Age at commencement of test—3 years and 273 days.
Date of calving—September 24, 1908.
Date of calving after test—August 24, 1909.
Total production—milk, 11,377·55 lbs.; fat, 521·91 lbs.
Average per cent of fat, 4·59; days in milk, 335.
Production required for registration—milk, 7,250 lbs.; fat, 261 lbs.

No. 76 C. R. of P.—**Dairy Queen of Springhill**, Reg. No. 23743.
Breeders—R. Hunter & Sons, Maxville, Ont.
Owners—R. Hunter & Sons, Maxville, Ont.
Test commenced—September 7, 1908.
Age at commencement of test—3 years and 120 days.
Date of calving—September 2, 1908.
Date of previous calving—September, 1907.
Date of calving after test—November 10, 1909.
Total production—milk, 8,023·75 lbs.; fat, 331·85 lbs.
Average per cent of fat, 4·13; days in milk, 328.
Production required for registration—milk, 6,830 lbs.; fat, 246 lbs.

No. 68 C. R. of P.—**Shannon Bank Frances 2nd**, Reg. No. 23520.
Breeder—W. H. Tran, Cedar Grove, Ont.
Owner—W. H. Tran, Cedar Grove, Ont.
Test commenced—July 4, 1908.
Age at commencement of test—3 years and 206 days.
Date of calving—June 29, 1908.
Date of calving after test—August 24, 1909.
Total production—milk, 9,133 lbs.; fat, 360·33 lbs.
Average per cent of fat, 3·94; days in milk, 361.
Production required for registration—milk, 7,066·5 lbs.; fat, 254·4 lbs.

No. 71 C. R. of P.—**Ruth**, Reg. No. 23578.
Breeders—Wooddisse Bros., Rothsay, Ont.
Owners—Wooddisse Bros., Rothsay, Ont.
Test commenced—January 9, 1909.

Age at commencement of test—3 years and 330 days.
Date of calving—January 8, 1909.
Date of previous calving—November 23, 1907.
Date of calving after test—February 12, 1910.
Total production—milk, 7,591·5 lbs.; fat, 276·65 lbs.
Average per cent of fat, 3·64; days in milk, 365.
Production required for registration—milk, 7,407·5 lbs.; fat, 266·6 lbs.

No. 73 C. R. of P.—**Daisy**, Reg. No. 23582.
Breeders—Wooddisse Bros., Rothsay, Ont.
Owners—Wooddisse Bros., Rothsay, Ont.
Test commenced—February 12, 1909.
Age at commencement of test—3 years and 112 days.
Date of calving—February 11, 1909.
Date of previous calving—January 1, 1908.
Date of calving after test—March 1, 1910.
Total production—milk, 7,554 lbs.; fat, 338·88 lbs.
Average per cent of fat, 4·48; days in milk, 330.
Production required for registration—milk, 6,808 lbs.; fat, 245 lbs.

No. 77 C. R. of P.—**Star's Annie Laurie**, Reg. No. 21543.
Breeders—H. & J. McKee, Norwich, Ont.
Owner—E. Cohoon, Harrietsville, Ont.
Test commenced—March 6, 1909.
Age at commencement of test—3 years and 110 days.
Date of calving—March 4, 1909.
Date of previous calving—March 16, 1908.
Date of calving after test—March 15, 1910.
Total production—milk, 8,230·3 lbs.; fat, 330·87 lbs.
Average per cent of fat, 4·02; days in milk, 319.
Production required for registration—milk, 6,802·5 lbs.; fat, 245 lbs.

No. 84 C. R. of P.—**Lilly of the Valley**, Reg. No. 20300.
Breeders—Alex. Hume & Co., Menie, Ont.
Owners—Alex. Hume & Co., Menie, Ont.
Test commenced—March 10, 1909.
Age at commencement of test—3 years and 360 days.
Date of calving—March 7, 1909.
Date of calving after test—March 10, 1910.
Total production—milk, 8,028·37 lbs.; fat, 333·55 lbs.
Average per cent of fat, 4·16; days in milk, 327.
Production required for registration—milk, 7,490 lbs.; fat, 269·6 lbs.

No. 86 C. R. of P.—**Julia**, Reg. No. 23580.
Breeders—Wooddisse Bros., Rothsay, Ont.
Owners—Wooddisse Bros., Rothsay, Ont.
Test commenced—March 19, 1909.
Age at commencement of test—3 years and 136 days.
Date of calving—March 18, 1909.
Date of calving after test—April 7, 1910.
Total production—milk, 8,062·5 lbs.; fat, 377·32 lbs.
Average per cent of fat, 4·68; days in milk, 339.
Production required for registration—milk, 6,874 lbs.; fat, 247 lbs.

COWS TWO YEARS OLD AND UNDER THREE.

No. 35 C. R. of P.—**Adalia 3rd**, Reg. No. 22948.
Breeder—E. Cohoon, Harrietsville, Ont.
Owner—E. Cohoon, Harrietsville, Ont.
Test commenced—July 10, 1907.
Age at commencement of test—2 years and 9 days.
Date of calving—July 8, 1907.
Date of calving after test—August 5, 1908.
Total production—milk, 8,845·55 lbs.; fat, 326·46 lbs.
Average per cent of fat, 3·69; days in milk, 365.
Production required for registration—milk, 5,524·75 lbs.; fat, 198·90 lbs.

No. 36 C. R. of P.—**Rosebud**, Reg. No. 22305.
Breeder—James Whittin, Wellman's Corners, Ont.
Owner—Joseph Thompson, Sardis, B.C.
Test commenced—September 12, 1907.
Age at commencement of test—2 years and 70 days.
Date of calving—September 9, 1907.
Date of calving after test—November 14, 1908.
Total production—milk, 7,982·5 lbs.; fat, 280·10 lbs.
Average per cent of fat, 3·51; days in milk, 365.
Production required for registration—milk, 5,692·5 lbs.; fat, 205 lbs.

No. 37 C. R. of P.—**Royal Ruby of the Hills**, Reg. No. 23373.
Breeders— A. C. Wells & Son, Sardis, B.C.
Owners—A. C. Wells & Son, Sardis, B.C.
Test commenced—June 22, 1907.
Age at commencement of test—1 year and 305 days.
Date of calving—June 22, 1907.
Date of calving after test—August 1, 1908.
Total production—milk, 6,515·5 lbs.; fat, 276·46 lbs.
Average per cent of fat, 4·24; days in milk, 365.
Production required for registration—milk, 5,500 lbs.; fat, 198 lbs.

No. 39 C. R. of P.—**Dolly Dutton of Ste. Anne's 2nd**, Reg. No. 23374.
Breeders—A. C. Wells & Son, Sardis, B.C.
Owners—A. C. Wells & Son, Sardis, B.C.
Test commenced—September 1, 1907.
Age at commencement of test—2 years and 10 days.
Date of calving—August 29, 1907.
Date of calving after test—August 1, 1908.
Total production—milk, 6,290 lbs.; fat, 287·72 lbs.
Average per cent of fat, 4·57; days in milk, 334.
Production required for registration—milk, 5,527 lbs.; fat, 199 lbs.

No. 46 C. R. of P.—**Bessie 16th of Neidpath**, Reg. No. 21468.
Breeder—W. W. Ballantyne, Stratford, Ont.
Owner—W. W. Ballantyne, Stratford, Ont.
Test commenced—February 4, 1908.
Age at commencement of test—2 years and 143 days.
Date of calving—February 2, 1908.
Date of calving after test—March 21, 1909.
Total production—milk, 7,625 lbs.; fat, 330·78 lbs.
Average per cent of fat, 4·34; days in milk, 358.
Production required for registration—milk, 5,893 lbs.; fat, 212 lbs.

No. 51 C. R. of P.—**Niedpath Rose 10th**, Reg. No. 21459.
Breeder—W. W. Ballantyne, Stratford, Ont.
Owner—W. W. Ballantyne, Stratford, Ont
Test commenced—March 21, 1908
Age at commencement of test—2 years and 178 days.
Date of calving—March 18, 1908.
Date of calving after test—April 16, 1909.
Total production—milk, 6,442·2 lbs.; fat, 295·99 lbs.
Average per cent of fat, 4·60; days in milk, 355.
Production required for registration—milk, 5,989·5 lbs.; fat, 215·6 lbs.

No. 53 C. R. of P.—**Daisy of Westland**, Reg. No. 21799.
Breeder—J. N. Greenshields, Danville, Que.
Owner—Gus. A. Langelier, Cap Rouge, Que.
Test commenced—May 1, 1908.
Age at commencement of test—2 years and 208 days.
Date of calving—April 27, 1908.
Date of calving after test—May 10, 1909.
Total production—milk, 6,950 lbs.; fat, 316·77 lbs.
Average per cent of fat, 4·55; days in milk, 355.
Production required for registration—milk, 6,072 lbs.; fat, 218·8 lbs.

No. 54 C. R. of P.—**Scotia Jean**, Reg. No. 24130.
Breeder—W. T. Thompson, Rockton, Ont.
Owner—W. W. Bowley, Napperton, Ont.
Test commenced—February 5, 1908.
Age at commencement of test—2 years and 93 days.
Date of calving—February 1, 1908.
Date of calving after test—February 25, 1909.
Total production—milk, 5,880 lbs.; fat, 244·98 lbs.
Average per cent of fat—4·16; days in milk, 335.
Production required for registration—milk, 5,755·75 lbs.; fat, 207·3 lbs.

No. 30 C. R. of P.—**Ardyne Carntyne 4th**, Reg. No. 26249.
Breeder—John McAlister, Toward, Scotland.
Owners—R. Hunter & Sons, Maxville, Ont.
Test commenced—July 7, 1908.
Age at commencement of test—2 years and 173 days.
Date of calving—July 4, 1908.
Date of calving after test—August 18, 1909.
Total production—milk, 7,019·75 lbs.; fat, 312·93 lbs.
Average per cent of fat, 4·45; days in milk, 365.
Production required for registration—milk, 5,975·75 lbs.; fat, 215 lbs.

No. 57 C. R. of P.—**Auchenbrain White Rose**, Reg. No. 26348.
Breeder—Robert Wallace, Mauchline, Scotland.
Owners—R. Hunter & Sons, Maxville, Ont.
Test commenced—August 3, 1908.
Age at commencement of test—2 years and 200 days.
Date of calving—August 1, 1908.
Date of calving after test—August 22, 1909.
Total production—milk, 6,618 lbs.; fat, 278·82 lbs.
Average per cent of fat, 4·21; days in milk, 363.
Production required for registration—milk, 6,050 lbs.; fat, 218 lbs.

No. 61 C. R. of P.—**Madeline B**, Reg. No. 23601.
Breeder—James Begg, St. Thomas, Ont.
Owner—James Begg, St. Thomas, Ont.
Test commenced—July 7, 1908.
Age at commencement of test—2 years and 50 days.
Date of calving—July 4, 1908.
Date of calving after test—September 23, 1909.
Total production—milk, 7,135·5 lbs.; fat, 292·97 lbs.
Average per cent of fat, 4·10; days in milk, 365.
Production required for registration—milk, 5,637·5 lbs.; fat, 203 lbs.

No. 62 C. R. of P.—**Sybella of Springbank**, Reg. No. 27691.
Breeder—A. S. Turner, Ryckman's Corners, Ont.
Owner—A. S. Turner, Ryckman's Corners, Ont.
Test commenced—September 5, 1908.
Age at commencement of test—2 years and 350 days.
Date of calving—September 4, 1908.
Date of calving after test—April 18, 1909.
Total production—milk, 7,305·9 lbs.; fat, 302·24 lbs.
Average per cent of fat, 4·13; days in milk, 226.
Production required for registration—milk, 6,462·5 lbs.; fat, 232·6 lbs.

No. 63 C. R. of P.—**Princess**, Reg. No. 23581.
Breeders—Wooddisse Bros., Rothsay, Ont.
Owners—Wooddisse Bros., Rothsay, Ont.
Test commenced—August 17, 1908.
Age at commencement of test—2 years and 80 days.
Date of calving—August 14, 1908.
Date of calving after test—September 24, 1909.
Total production—milk, 6,778·75 lbs.; fat, 292·05 lbs.
Average per cent of fat, 4·30; days in milk, 365.
Production required for registration—milk, 5,720 lbs.; fat, 206 lbs.

No. 65 C. R. of P.—**Jemima of Springbank**, Reg. No. 27689.
Breeder—A. S. Turner, Ryckman's Corners, Ont.
Owner—A. S. Turner, Ryckman's Corners, Ont.
Test commenced—September 29, 1908.
Age at commencement of test—2 years and 13 days.
Date of calving—September 28, 1908.
Date of calving after test—September 15, 1909.
Total production—milk, 8,839·15 lbs.; fat, 395·33 lbs.
Average per cent of fat, 4·47; days in milk, 338.
Production required for registration—milk, 5,536 lbs.; fat, 199·3 lbs.

No. 66 C. R. of P.—**Isaleigh Miss Sandy**, Reg. No. 23827.
Breeder—J. N. Greenshields, Danville, Que.
Owner—Gus. A. Langelier, Cap Rouge, Que.
Test commenced—May 1. 1908.
Age at commencement of test—2 years and 53 days.
Date of calving—April 23, 1908.
Date of calving after test—July 21, 1909.
Total production—milk, 6,744 lbs.; fat, 288·75 lbs.
Average per cent of fat, 4·28; days in milk, 365.
Production required for registration—milk, 5,645·75 lbs.; fat, 203·8 lbs.

No. 69 C. R. of P.—**Lucy 4th**, Reg. No. 25101.
Breeder—W. H. Tran, Cedar Grove, Ont.
Owner—W. H. Tran, Cedar Grove, Ont.
Test commenced—September 1, 1908.
Age at commencement of test—1 year and 259 days.
Date of calving—August 26, 1908.
Date of calving after test—October 7, 1909.
Total production—milk, 5,782 lbs.; fat, 259·29 lbs.
Average per cent of fat, 4·50; days in milk, 329.
Production required for registration—milk, 5,500 lbs; fat, 198 lbs.

No. 79 C. R. of P—**Hot Scotch Lassie**, Reg. No. 23704.
Breeder—W. M. Smith, Scotland, Ont.
Owner—Frank Harris, Mt. Elgin, Ont.
Test commenced—January 10, 1909.
Age at commencement of test—2 years and 95 days.
Date of calving—January 1, 1909.
Date of calving after test—February 10, 1910.
Total production—milk, 6,066 lbs.; fat, 258·61 lbs.
Average per cent of fat, 4·26; days in milk, 328.
Production required for registration—milk, 5,761 lbs.; fat, 206·4 lbs.

No. 87 C. R. of P.—**Madge**, Reg. No. 27700.
Breeders—Wooddisse Bros., Rothsay, Ont.
Owners—Wooddisse Bros., Rothsay, Ont.
Test commenced—February 17, 1909.
Age at commencement of test—2 years and 65 days.
Date of calving—February 16, 1909.
Date of calving after test—April 3, 1910.
Total production—milk, 8,663·25 lbs.; fat, 301·06 lbs.
Average per cent of fat, 4·52; days in milk, 346.
Production required for registration—milk, 5,678·75 lbs.; fat, 204·4 lbs.

No. 89 C. R. of P.—**Bessie 18th of Neidpath**, Reg. No. 24610.
Breeder—W. W. Ballantyne, Stratford, Ont.
Owner—W. W. Ballantyne, Stratford, Ont.
Test commenced—April 13, 1909.
Age at commencement of test—2 years and 219 days.
Date of calving—April 10, 1909.
Date of calving after test—April 23, 1910.
Total production—milk, 6,461·1 lbs.; fat, 293·5 lbs.
Average per cent of fat, 4·57; days in milk, 352.
Production required for registration—milk, 6,102·25 lbs.; fat, 220 lbs.

FRENCH CANADIAN.

COWS FIVE YEARS OLD AND OVER.

No. 4 C. R. of P.—**Fortune**, Reg. No. 757.
Breeders—R. R. P. P. Trappistes, Oka, Que.
Owner—T. B. Macaulay, Hudson Heights, Que.
Test commenced—March 23, 1909.
Age at commencement of test—9 years and 334 days.
Date of calving—March 23, 1909.

Date of previous calving—December 26, 1907.
Date of calving after test—February 14, 1910.
Total production—milk, 7,158·25 lbs.; fat, 330·48 lbs.
Average per cent of fat, 4 61; days in milk, 302.
Production required for registration—milk, 6,800 lbs.; fat, 306 lbs.

No. 2 C. R. of P.—**Garceau 3rd**, Reg. No. 6502.
Breeder—G. Garceau, Point du Lac, Que.
Owner—G. Garceau, Point du Lac, Que.
Test commenced—May 1, 1907.
Age at commencement of test—2 years and 60 days.
Date of calving—April 10, 1907.
Date of calving after test—March 15, 1908.
Total production—milk, 5,090·43 lbs.; fat, 207·08 lbs.
Average per cent of fat, 4·10; days in milk, 365.
Production required for registration—milk, 4,532 lbs.; fat, 204 lbs.

No. 3 C. R. of P.—**Douarnenaise**, Reg. No. 1200.
Breeder—Ferd. Van Bruyssel, Beaupre, Que.
Owner—T. B. Macaulay, Hudson Heights, Que.
Test commenced—May 9, 1909.
Age at commencement of test—1 year and 239 days.
Date of calving—May 2, 1909.
Date of calving after test—March 11, 1910.
Total production—milk, 4,724·25 lbs.; fat, 221·91 lbs.
Average per cent of fat, 4·70; days in milk, 284.
Production required for registration—milk, 4,400 lbs.; fat, 198 lbs.

No. 5 C. R. of P.—**Orange Blossom**, Reg. No. 886.
Breeder—T. B. Macaulay, Hudson Heights, Que.
Owner—T. B. Macaulay, Hudson Heights, Que.
Test commenced—December 25, 1908.
Age at commencement of test—2 years and 67 days.
Date of calving—December 25, 1908.
Date of calving after test—March 15, 1910.
Total production—milk, 5,333·50 lbs.; fat, 280·55 lbs.
Average per cent of fat, 5·26; days in milk, 365.
Production required for registration—Milk, 4,547·4 lbs.; fat, 204·7 lbs.

HOLSTEIN-FRIESIAN.

COWS FIVE YEARS AND OVER.

Production required for Registration: Milk, 10,500 lbs; Fat, 357.

No. 7 C. R. of P.—**Malahide Princess**, Reg. No. 4615.
Breeders—Wm. Pound & Son, Bayham, Ont.
Owner—Geo. H. Caughell, Aylmer, Ont.
Test commenced—July 29, 1907.
Age at commencement of test—7 years and 264 days.
Date of calving—July 25, 1907.
Date of previous calving—August 4, 1906.
Date of calving after test—September 17, 1908.
Total production—milk, 10,621·75 lbs.; fat, 402·72 lbs.
Average per cent of fat, 3·80; days in milk, 350.

No. 8 C. R. of P.—**Evergreen March**, Reg. No. 3896.
Breeder—G. A. Gilroy, Glen Buell, Ont.
Owner—G. W. Clemons, St. George, Ont.
Test commenced—October 16, 1907.
Age at commencement of test—5 years and 53 days.
Date of calving—October 16, 1907.
Date of previous calving—October 7, 1906.
Date of calving after test—October 18, 1908.
Total production—milk, 15,239·25 lbs.; fat, 556·73 lbs.
Average per cent of fat, 3·65; days in milk, 305.

No. 14 C. R. of P.—**Netherland Aaggie**, Reg. No. 2478.
Breeder—Matt. Richardson, Caledonia, Ont.
Owner—J. M. Van Patter, Luton, Ont.
Test commenced—June 20, 1908.
Age at commencement of test—9 years.
Date of calving—June 19, 1908.
Date of previous calving—June 1, 1907.
Date of calving after test—July 24, 1909.
Total production—milk, 13,545·5 lbs.; fat, 439·26 lbs.
Average per cent of fat, 3·24; days in milk, 323.

No. 18 C. R. of P.—**Netherland Tensen**, No. 3423.
Breeder—S. E. Smith, Dundas, Ont.
Owners—A. E. Smith & Son, Millgrove, Ont.
Test commenced—November 28, 1907.
Age at commencement of test—10 years.
Date of calving—November 26, 1907.
Date of previous calving—November 29, 1906.
Date of calving after test—February 11, 1909.
Total production—milk, 15,023·5 lbs.; fat, 473·63 lbs.
Average per cent of fat, 3·15; days in milk, 365.

No. 21 C. R. of P.—**Rosa Lee Dekol**, Reg. No. 3127.
Breeder—B. Mallory, Frankford, Ont.
Owner—B. Mallory, Frankford, Ont.
Test commenced—November 26, 1907.
Age at commencement of test—7 years and 250 days.
Date of calving—March 19, 1908.
Date of previous calving—December 14, 1906.
Date of calving after test—January 4, 1909.
Total production—milk, 13,990·5 lbs.; fat, 479·29 lbs.
Average per cent of fat, 3·42; days in milk, 365.

No. 22 C. R. of P.—**Snowflake Queen Dekol of Minster**, Reg. No. 4535.
Breeder—Richard Honey, Brickley, Ont.
Owner—Richard Honey, Brickley, Ont.
Test commenced—March 26, 1908.
Age at commencement of test—5 years.
Date of calving—March 19, 1908.
Date of previous calving—March 27, 1907.
Date of calving after test—April 26, 1909.
Total production—Milk, 13,089 lbs.; fat, 443·24 lbs.
Average per cent fat, 3·38; days in milk, 365.

No. 23 C. R. of P.—**Sara Jane 2nd**, Reg. No. 3604.
Breeder—R. Willis, jr., Glen Meyer, Ont.
Owner—W. J. Bailey, Nober, Ont.
Test commenced—March 5, 1908.
Age at commencement of test—9 years.
Date of calving—March 2, 1908.
Date of previous calving—February 18, 1907.
Date of calving after test—April 20, 1909.
Total production—milk, 11,428·5 lbs.; fat, 426·55 lbs.
Average per cent of fat, 3·73; days in milk, 364.

No. 31 C. R. of P.—**Madam Dot 3rd's Princess Pauline Dekol**, Reg. No. 3708.
Breeder—H. Bollert, Cassel, Ont.
Owner—N. Sangster, Ormstown, Que.
Test commenced—April 1, 1908.
Age at commencement of test—6 years and 240 days.
Date of calving—March 31, 1908.
Date of previous calving—April 9, 1907.
Date of calving after test—May 28, 1909.
Total production—milk, 12,743·1 lbs.; fat, 487·23 lbs.
Average per cent of fat, 3·82; days in milk, 365.

No. 33 C. R. of P.—**Bontje Paul**, Reg. No. 2260.
Breeder—F. L. Brown, Kelso, Que.
Owner—N. Sangster, Ormstown, Que.
Test commenced—February 2, 1908.
Age at commencement of test—9 years.
Date of calving—February 1, 1908.
Date of previous calving—January 28, 1907.
Date of calving after test—March 22, 1909.
Total production—milk, 13,011·7 lbs.; fat, 445·81 lbs.
Average per cent of fat, 3·43; days in milk, 365.

No. 35 C. R. of P.—**Vida Princess 3rd**, Reg. No. 2774.
Breeder—John Beemer, St. George, Ont.
Owner—J. M. Van Patter, Luton, Ont.
Test commenced—December 26, 1907.
Age at commencement of test—9 years.
Date of calving—December 24, 1907.
Date of previous calving—January 10, 1907.
Date of calving after test—February 18, 1909.
Total production—milk, 14,629 lbs.; fat, 438·11 lbs.
Average per cent of fat, 3·00; days in milk, 365.

No. 36 C. R. of P.—**Vida Princess 4th**, Reg. No. 2775.
Breeder—John Beemer, St. George, Ont.
Owner—J. M. Van Patter, Luton, Ont.
Test commenced—January 29, 1908.
Age at commencement of test—8 years.
Date of calving—January 29, 1908.
Date of previous calving—February 15, 1907.
Date of calving after test—April 1, 1909.
Total production—milk, 18,482·75 lbs.; fat, 602·61 lbs.
Average per cent of fat, 3·26; days in milk, 365.

No. 41 C. R. of P.—**Netherland Aaggie Dekol**, Reg. No. 6439.
Breeder—Matt. Richardson, Caledonia, Ont.
Owner—J. M. Van Patter, Luton, Ont.
Test commenced—May 7, 1908.
Age at commencement of test—7 years.
Date of calving—May 7, 1908.
Date of previous calving—June 20, 1907.
Date of calving after test—July 16, 1909.
Total production—milk, 21,666 lbs.; fat, 704·83 lbs.
Average per cent of fat, 3·25; days in milk, 365.

No. 46 C. R. of P.—**Lady Elgin A**, Reg. No. 4918.
Breeder—Simon P. Charlton, Springfield, Ont.
Owner—F. Leeson, Aylmer, Ont.
Test commenced—April 24, 1908.
Age at commencement of test—5 years.
Date of calving—April 20, 1908.
Date of previous calving—April 1, 1907.
Date of calving after test—June 1, 1909.
Total production—milk, 11,487·2 lbs.; fat, 442·57 lbs.
Average per cent of fat, 3·85; days in milk, 365.

No. 47 C. R. of P.—**Edna Wallace**, Reg. No. 3505.
Breeder—G. W. Clemons, St. George, Ont.
Owner—F. Leeson, Aylmer, Ont.
Test commenced—March 14, 1908.
Age at commencement of test—6 years and 172 days.
Date of calving—March 12, 1908.
Date of previous calving—February 15, 1907.
Date of calving after test—May 17, 1909.
Total production—milk, 16,367·9 lbs.; fat, 542·60 lbs.
Average per cent of fat, 3·31; days in milk, 365.

No. 57 C. R. of P.—**Lilly Westwoud 2nd**, Reg. No. 3966
Breeder—Thos. Hartley, Downsview, Ont.
Owner—Thos. Hartley, Downsview, Ont.
Test commenced—August 22, 1908.
Age at commencement of test—6 years.
Date of calving—August 12, 1908.
Date of previous calving—July 15, 1907.
Date of calving after test—November 3, 1909.
Total production—milk, 11,593·35 lbs.; fat, 370·59 lbs.
Average per cent of fat, 3·19; days in milk, 323.

No. 60 C. R. of P.—**Belle Dekol Queen 2nd**, Reg. No. 3523.
Breeder—H. Bollert, Cassel, Ont.
Owner—H. Bollert, Cassel, Ont.
Test commenced—October 21, 1908.
Age at commencement of test—7 years.
Date of calving—October 19, 1908.
Date of previous calving—September 23, 1907.
Date of calving after test—November 26, 1909.
Total production—milk, 15,447·23 lbs.; fat, 495·29 lbs.
Average per cent of fat, 3·20; days in milk, 344.

No. 63 C. R. of P.—**Spotted Dekol Lady**, Reg. No. 8118.
Breeder—Samuel Lemon, Lynden, Ont.
Owner—Samuel Lemon, Lynden, Ont.
Test commenced—October 22, 1908.
Age at commencement of test—8 years.
Date of calving—October 21, 1908.
Date of previous calving—November 17, 1907.
Date of calving after test—November 29, 1909.
Total production—milk, 13,212·25 lbs.; fat, 473·13 lbs.
Average per cent of fat, 3·57; days in milk, 332.

No. 64 C. R. of P.—**Sevangeline 2nd**, Reg. No. 4340.
Breeder—Alfred Rice, Currie's Crossing, Ont.
Owner—Samuel Lemon, Lynden, Ont.
Test commenced—December 13, 1908.
Age at commencement of test—6 years.
Date of calving—December 12, 1908.
Date of previous calving—January 8, 1908.
Date of calving after test—December 29, 1909.
Total production—milk, 10,655 lbs.; fat, 373·10 lbs.
Average per cent of fat, 3·50; days in milk, 300.

No. 69 C. R. of P.—**Bertha Black**, Reg. No. 2327.
Breeder—Wm. Suhring, Sebringville, Ont.
Owner—Otto Suhring, Sebringville, Ont.
Test commenced—April 8, 1909.
Age at commencement of test—10 years.
Date of calving—April 8, 1909.
Date of previous calving—April 21, 1908.
Date of calving after test—April 7, 1910.
Total production—milk, 15,244·37 lbs.; fat, 530·03 lbs.
Average per cent of fat, 3·48; days in milk, 327.

No. 72 C. R. of P.—**Springbrook Queen**, Reg. No. 1302.
Breeders—Smith Bros., Churchville, Ont.
Owner—Samuel Lemon, Lynden, Ont.
Test commenced—January 30, 1909.
Age at commencement of test—15 years.
Date of calving—January 29, 1909.
Date of previous calving—February 6, 1908.
Date of calving after test—March 1, 1910.
Total production—milk, 11,565·18 lbs.; fat, 363·00 lbs.
Average per cent of fat, 3·15; days in milk, 360

No. 73 C. R. of P.—**Countess Carrie Mercedes**, Reg. No. 8120.
Breeder—Samuel Lemon, Lynden, Ont.
Owner—Samuel Lemon, Lynden, Ont.
Test commenced—February 19, 1909.
Age at commencement of test—5 years.
Date of calving—February 18, 1909.
Date of previous calving—March 7, 1908.
Date of calving after test—February 28, 1910.
Total production—milk, 13,400·75 lbs.; fat, 383·30 lbs.
Average per cent of fat, 2·86; days in milk, 347.

No. 76 C. R. of P.—**Trenton Pride**, Reg. No. 3491.
Breeder—B. Mallory, Frankford, Ont.
Owner—B. Mallory, Frankford, Ont.
Test commenced—December 6, 1908.
Age at commencement of test—7 years and 240 days.
Date of calving—December 6, 1908.
Date of previous calving—November 20, 1907.
Date of calving after test—December 27, 1909.
Total production—milk, 12,792·4 lbs.; fat, 378·61 lbs.
Average per cent of fat, 2·96; days in milk, 332.

No. 78 C. R. of P.—**Rideau Della Princess Dekol**, Reg. No. 4612.
Breeder—Matt. Richardson, Caledonia, Ont.
Owner—C. Duff. Nelles, Boston, Ont.
Test commenced—March 11, 1909.
Age at commencement of test—6 years.
Date of calving—March 10, 1909.
Date of previous calving—February 16, 1908.
Date of calving after test—March 28, 1910.
Total production—milk, 15,069·7 lbs.; fat, 464·33 lbs.
Average per cent of fat, 3·08; days in milk, 305.

No. 80 C. R. of P.—**Shaiwassee Beauty 2nd**, Reg. No. 12157.
Breeder—Ernest H. Josenhans, Owosso, Mich., U.S.A.
Owner—H. Bollert, Cassell, Ont.
Test commenced—January 23, 1909.
Age at commencement of test—8 years.
Date of calving—January 20, 1909.
Date of previous calving—October 29, 1907.
Date of calving after test—March 30, 1910.
Total production—milk, 13, 694·31 lbs.; fat, 440·36 lbs.
Average per cent of fat, 3·21; days in milk, 365.

COWS FOUR YEARS OLD AND UNDER FIVE.

No. 9 C. R of P.—**Ruth Tensen Dekol**, Reg. No. 6940.
Breeder—R. S. Stevenson, Ancaster, Ont.
Owners—A. E. Smith & Son, Millgrove, Ont.
Test commenced—November 26, 1907.
Age at commencement of test—4 years and 115 days.
Date of calving—November 24, 1907.
Date of previous calving—October 22, 1906.
Date of calving after test—December 22, 1908.
Total production—milk, 13,289 lbs.; fat, 407·13 lbs.
Average per cent of fat, 3·06; days in milk, 320.
Production required for registration—milk, 9,816·25 lbs.; fat, 333·75 lbs.

No. 16 C. R. of P.—**Lucretia Borgia**, Reg. No. 4432.
Breeder—G. W. Clemons, St. George, Ont.
Owner—G. W. Clemons, St. George, Ont.
Test commenced—November 23, 1907.
Age at commencement of test—4 years and 271 days.
Date of calving—November 22 1907.
Date of previous calving—November 22, 1906.

Date of calving after test—November 9, 1908.
Total production—milk, 10,697 lbs.; fat, 419·737 lbs.
Average per cent of fat, 3·92; days in milk, 313.
Production required for registration—milk, 10,247·25 lbs.; fat, 348·4 lbs.

No. 19 C. R. of P.—**Glenside Nerissa**, Reg. No. 5395.

Breeder—George North, Marden, Ont.
Owner—G. H. McKenzie, Thornhill, Ont.
Test commenced—January 29, 1908.
Age at commencement of test—4 years and 17 days.
Date of calving—January 24, 1908.
Date of previous calving—December, 1906.
Date of calving after test—March 3, 1909.
Total production—milk, 12,459·4 lbs.; fat, 397·6 lbs.
Average per cent of fat, 3·19; days in milk, 342.
Production required for registration—milk, 9,546·75 lbs.; fat,324·5 lbs.

No. 20 C. R. of P.—**Glenside Laura**, Reg. No. 5394.

Breeder—George North, Marden, Ont.
Owner—G. H. McKenzie, Thornhill, Ont.
Test commenced—January 15, 1908.
Age at commencement of test—4 years and 21 days.
Date of calving—January 12, 1908.
Date of previous calving—December, 1906.
Date of calving after test—February 24, 1909.
Total production—milk, 11,651·2 lbs.; fat, 341·21 lbs.
Average per cent of fat, 2·93; days in milk, 335.
Production required for registration—milk, 9,557·75 lbs.; fat, 325 lbs.

No. 40 C. R. of P.—**Johanna Netherland Dekol**, Reg. No. 4290.

Breeder—Mat. Richardson, Caledonia, Ont.
Owner—Miss G. Peacock, Mt. Salem, Ont.
Test commenced—April 12, 1908.
Age at commencement of test—4 years and 356 days.
Date of calving—April 12, 1908.
Date of previous calving—April 18, 1907.
Date of calving after test—May 26, 1909.
Total production—milk, 14,043·25 lbs.; fat, 473·81 lbs.
Average per cent of fat, 3·37; days in milk, 340.
Production required for registration—milk, 10,475 lbs.; fat, 356 lbs.

No. 45 C. R. of P.—**Vera H**, Reg. No. 4999.

Breeder—F. Leeson, Aylmer, Ont.
Owner—F. Leeson, Aylmer, Ont.
Test commenced—May 27, 1908.
Age at commencement of test—4 years and 52 days.
Date of calving—May 25, 1908.
Date of previous calving—June 4, 1907.
Date of calving after test—July 22, 1909.
Total production—milk, 14,107·5 lbs.; fat, 464·04 lbs.
Average per cent of fat, 3·29; days in milk, 365.
Production required for registration—milk, 9,643 lbs.; fat, 328 lbs.

No. 54 C. R. of P.—**Lulu Glaser**, Reg. No. 5099.
Breeder—G. W. Clemons, St. George, Ont.
Owner—S. Lemon, Lynden, Ont.
Test commenced—November 16, 1908.
Age at commencement of test—4 years and 236 days.
Date of calving—November 15, 1908.
Date of previous calving—November 22, 1907.
Date of calving after test—August 3, 1909.
Total production—milk, 12,499·99 lbs.; fat, 463·17 lbs.
Average per cent of fat, 3·70; days in milk, 260.
Production required for registration—milk, 10,149 lbs.; fat, 345 lbs.

No. 56 C. R. of P.—**May Echo Pietertje**, Reg. No. 4606.
Breeder—B. Mallory, Frankford. Ont.
Owner—B. Mallory, Frankford, Ont.
Test commenced—March 25, 1908.
Age at commencement of test—4 years and 354 days.
Date of calving—March 24, 1908.
Date of previous calving—March 28, 1907.
Date of calving after test—June 6, 1909.
Total production—milk, 11,720·5 lbs.; fat, 358·25 lbs.
Average per cent of fat, 3·06; days in milk, 335.
Production required for registration—milk, 10,473·5 lbs.; fat, 356 lbs.

No. 59 C. R. of P.—**Lina Netherland Abbekerk**, Reg. No. 12159.
Breeder—Edgar Collier, Fowlerville, Mich., U.S.A.
Owner—H. Bollert, Cassel, Ont.
Test commenced—December 1, 1908.
Age at commencement of test—4 years and 7 days.
Date of calving—November 27, 1908.
Date of previous calving—October 21, 1907.
Date of calving after test—November 13, 1909.
Total production—milk, 12,773·31 lbs.; fat, 419·78 lbs.
Average per cent of fat, 3·28; days in milk, 288.
Production required for registration—milk, 9,520 lbs.; fat, 323·7 lbs.

No. 77 C. R. of P.—**Daisy Verbelle**, Reg. No. 5079.
Breeder—B. Mallory, Frankford, Ont.
Owner—B. Mallory, Frankford, Ont.
Test commenced—September 12, 1908.
Age at commencement of test—4 years and 220 days.
Date of calving—September 8, 1908.
Date of previous calving—August 27, 1907.
Date of calving after test—November 5, 1909.
Total production—milk, 12,268·8 lbs.; fat, 412·29 lbs.
Average per cent of fat, 3·36; days in milk, 360.
Production required for registration—milk, 10,105 lbs.; fat, 343·5 lbs.

No. 81 C. R. of P.—**Jessie Inka Keyes**, Reg. No. 6291.
Breeder—J. A. Caskey, Madoc, Ont.
Owner—J. A. Caskey, Madoc, Ont.
Test commenced—February 15, 1909.
Age of commencement of test—4 years and 354 days.
Date of calving—February 5, 1909.

Date of previous calving—February 1, 1908.
Date of calving after test—March 19, 1910.
Total production—milk, 12,860·5 lbs.; fat, 417·73 lbs.
Average per cent of fat, 3·24; days in milk, 362.
Production required for registration—milk, 10,473·5 lbs.; fat, 356 lbs.

COWS THREE YEARS OLD AND UNDER FOUR.

No. 10 C. R. of P.—**Bonnie Tensen**, Reg. No. 5818.
Breeder—S. E. Smith, Dundas, Ont.
Owner—Oliver D. Bales, Lansing, Ont.
Test commenced—May 21, 1908.
Age at commencement of test—3 years and 310 days.
Date of calving—May 18, 1908.
Date of previous calving—May 11, 1907.
Date of calving after test—July 24, 1909.
Total production—milk, 13,215·5 lbs.; fat, 436·53 lbs.
Average per cent of fat, 3·30; days in milk, 365.
Production required for registration—milk, 9,352·5 lbs.; fat, 318 lbs.

No. 11 C. R. of P.—**Helbon Dekol**, Reg. No. 5631.
Breeder—D. Jones, jr., Villa Nova, Ont.
Owners—Edmund Laidlaw & Sons, Aylmer West, Ont.
Test commenced—November 1, 1907.
Age at commencement of test—3 years and 125 days.
Date of calving—October 28, 1907.
Date of previous calving—October 30, 1906.
Date of calving after test—January 1, 1909.
Total production—milk, 16,346 lbs.; fat, 568·48 lbs.
Average per cent of fat, 3·48; days in milk, 365.
Production required for registration—milk, 8,843·75 lbs.; fat, 300·63 lbs.

No. 25 C. R. of P.—**May Echo Verbelle**, Reg. No. 5320.
Breeder—B. Mallory, Frankford, Ont.
Owner—B. Mallory, Frankford, Ont.
Test commenced—February 11, 1908.
Age at commencement of test—3 years and 332 days.
Date of calving—February 11, 1908.
Date of previous calving—February 15, 1907.
Date of calving after test—February 23, 1909.
Total production—milk, 10,867 lbs.; fat, 345·78 lbs.
Average per cent of fat, 3·18; days in milk, 322.
Production required for registration—milk, 9,412 lbs.; fat, 320 lbs.

No. 34 C. R. of P.—**Verona**, Reg. No. 6419.
Breeder—N. Sangster, Ormstown, Que.
Owner—N. Sangster, Ormstown, Que.
Test commenced—April 29, 1908.
Age at commencement of test—3 years and 15 days.
Date of calving—April 27, 1908.
Date of calving after test—June 14, 1909.
Total production—milk, 10,080·1 lbs.; fat 310·28 lbs.
Average per cent of fat, 3·07; days in milk, 322.
Production required for registration—milk, 8,541·25 lbs.; fat, 290 lbs.

No. 42 C. R. of P.—**Faforit Butter Girl**, Reg. No. 5870.
Breeder—R. F. Hicks, Newtonbrook, Ont.
Owner—Thomas Hartley, Downsview, Ont.
Test commenced—April 18, 1908.
Age at commencement of test—3 years and 118 days.
Date of calving—April 15, 1908.
Date of previous calving—November 3, 1906.
Date of calving after test—May 20, 1909.
Total production—milk, 13,272·35 lbs.; fat, 428·38 lbs.
Average per cent of fat, 3·22; days in milk, 342.
Production required for registration—milk, 8,824·5 lbs.; fat, 300 lbs.

No. 43 C. R. of P.—**Nierop Netherland Bess 2nd**, Reg. No. 6694.
Breeder—Thos. Hartley, Downsview, Ont.
Owner—Thos. Hartley, Downsview, Ont.
Test commenced—March 22, 1908.
Age at commencement of test—3 years and 274 days.
Date of calving—March 13, 1908.
Date of calving after test—April 21, 1909.
Total production—milk, 13,052·8 lbs.; fat, 434·15 lbs.
Average per cent of fat, 3·32; days in milk, 360.
Production required for registration—milk, 9,253·5 lbs.; fat, 314·6 lbs.

No. 50 C. R. of P.—**Sherwood Edna's Faforit**, Reg. No. 6119.
Breeder—R. F. Hicks, Newtonbrook, Ont.
Owner—C. H. Shaver, Davisville, Ont.
Test commenced—June 23, 1908.
Age at commencement of test—3 years and 178 days.
Date of calving—June 13, 1908.
Date of previous calving—January 27, 1907.
Date of calving after test—September 8, 1909.
Total production—milk, 12,605·25 lbs.; fat, 394·73 lbs.
Average per cent of fat, 3·13; days in milk, 365.
Production required for registration—milk, 8,990 lbs.; fat, 306 lbs.

No. 55 C. R. of P.—**Julia Arthur 2nd**, Reg. No. 6977.
Breeder—G. W. Clemons, St. George, Ont.
Owner—G. W. Clemons, St. George, Ont.
Test commenced—August 9, 1908.
Age at commencement of test—3 years and 8 days.
Date of calving—August 8, 1908.
Date of previous calving—May 24, 1907.
Date of calving after test—October 19, 1909.
Total production—milk, 9,019 lbs.; fat, 318·17 lbs.
Average per cent of fat, 3·46; days in milk, 365.
Production required for registration—milk, 8,522 lbs.; fat, 290 lbs.

No. 61 C. R. of P.—**Maple Belle 2nd**, Reg. No. 6540.
Breeder—H. Bollert, Cassel, Ont.
Owner—H. Bollert, Cassel, Ont.
Test commenced—October 21, 1908.
Age at commencement of test—3 years and 253 days.
Date of calving—October 19, 1908.
Date of previous calving—February 24, 1907.

Date of calving after test—November 23, 1909.
Total production—milk, 12,594·47 lbs.; fat, 419·02 lbs.
Average per cent of fat, 3·33; days in milk, 330.
Production required for registration—milk, 9,195 lbs.: fat, 312 lbs.

No. 62 C. R. of P.—**Luella Tensen**, Reg. No. 8456.

Breeder—Fred. Reinke, Southcote, Ont.
Owner—Samuel Lemon, Lynden, Ont.
Test commenced—October 18, 1908.
Age at commencement of test—3 years and 245 days.
Date of calving—October 17, 1908.
Date of previous calving—June 22, 1907.
Date of calving after test—November 12, 1909.
Total production—milk, 13,504·6 lbs.: fat, 374·09 lbs.
Average per cent of fat, 2·77; days in milk, 336.
Production required for registration—milk, 9,173·75 lbs.; fat, 312 lbs.

No. 66 C. R. of P.—**Seymour Mechthilde Dekol**, Reg. No. 5974.

Breeder—G. W. Countryman, Tweed, Ont.
Owner—J. A. Caskey, Madoc, Ont.
Test commenced—February 13, 1909.
Age at commencement of test—3 years and 307 days.
Date of calving—February 13, 1909.
Date of previous calving—August 1, 1907.
Date of calving after test—March 9, 1910.
Total production—milk, 10,867 lbs.; fat, 364·38 lbs.
Average per cent of fat, 3·35; days in milk, 350.
Production required for registration—milk, 9,344 lbs; fat, 317·7 lbs.

No. 67 C. R. of P.—**Jessie Dekol Echo**, Reg. No. 6295.

Breeder—J. A. Caskey, Madoc, Ont.
Owner—J. A. Caskey, Madoc, Ont.
Test commenced—February 5, 1909.
Age at commencement of test—3 years and 317 days.
Date of calving—February 5, 1909.
Date of previous calving—August 10, 1907.
Date of calving after test—March 6, 1910.
Total production—milk, 12,905 lbs.; fat, 383·56 lbs.
Average per cent of fat, 2·97; days in milk, 365.
Production required for registration—milk, 9,371·75 lbs.; fat, 318·7 lbs.

No. 82 C. R. of P.—**Canaan Sherwood Orpha**, Reg. No. 7298.

Breeder—F. E. Came, Sault aux Recollets, Que.
Owner—F. E. Came, Sault aux Recollects, Que.
Test commenced—March 14, 1909.
Age at commencement of test—3 years and 55 days.
Date of calving—March 14, 1909.
Date of calving after test—March 25, 1910.
Total production—milk, 9,358·5 lbs.; fat, 297·28 lbs.
Average per cent of fat, 3·17; days in milk, 365.
Production required for registration—milk, 8,651·25 lbs.; fat, 294·14 lbs.

COWS TWO YEARS OLD AND UNDER THREE.

No. 12 C. R. of P.—**Wopke Posch**, Reg. No. 7406.
Breeder—George Rice, Tillsonburg, Ont.
Owners—Edmund Laidlaw & Sons, Aylmer, Ont.
Test commenced—December 19, 1907.
Age at commencement of test—1 year and 323 days.
Date of calving—December 14, 1907.
Date of calving after test—November 1, 1908.
Total production—milk, 7,870·87 lbs.; fat, 287·38 lbs.
Average per cent of fat, 3·65; days in milk, 318.
Production required for registration—milk, 7,500 lbs.; fat, 255 lbs

No. 13 C. R. of P.—**Ina Pauline Mercedes**, Reg. No. 6063.
Breeder—Francis Stauffer, Washington, Ont.
Owner—H. Bollert, Cassel, Ont.
Test commenced—November 12, 1907.
Age at commencement of test—2 years and 235 days.
Date of calving—November 2, 1907.
Date of calving after test—January 21, 1909.
Total production—milk, 12,060·37 lbs.; fat, 454·65 lbs.
Average per cent of fat, 3·59; days in milk, 359.
Production required for registration—milk, 8,149 lbs.; fat, 277 lbs.

No. 15 C. R. of P.—**Beulah Colantha**, Reg. No 6907.
Breeder—D. H. Brown, Beith, Que.
Owner—N. Sangster, Ormstown, Que.
Test commenced—December 27, 1907.
Age at commencement of test—2 years and 170 days.
Date of calving—December 25, 1907.
Date of calving after test—January 29, 1909.
Total production—milk, 9,030·1 lbs.; 296·79 lbs.
Average per cent of fat, 3·28; days in milk, 365.
Production required for registration—milk, 7,967·5 lbs.; fat, 271 lbs.

No. 17 C. R. of P.—**Rose Dekol Teake**, Reg. No. 6976.
Breeder—G. W. Clemons, St. George, Ont.
Owner—G. W. Clemons, St. George, Ont.
Test commenced—August 16, 1907.
Age at commencement of test—2 years and 346 days.
Date of calving—August 16, 1907.
Date of previous calving—August 16, 1906.
Date of calving after test—August 19, 1908.
Total production—milk, 9,366·15 lbs.; fat, 306·50 lbs.
Average per cent of fat, 3·27; days in milk, 312.
Production required for registration—milk, 8,451·5 lbs.; fat, 287·25 lbs.

No. 26 C. R. of P.—**Bell Tensen**, Reg. No. 6736.
Breeder—F. Stewart, Elfrida, Ont.
Owner—W. E. Mason, Tyrell, Ont.
Test commenced—April 4, 1908.
Age at commencement of test—2 years and 104 days.
Date of calving—April 4, 1908.
Date of calving after test—March 30, 1909.

Total production—milk, 10,927 lbs.; fat, 350·49 lbs.
Average per cent of fat, 3·20; days in milk, 325.
Production required for registration—milk, 7,786 lbs.; fat, 264·72 lbs.

No. 27 C. R. of P.—**Minnie Springbrook**, Reg. No. 6735.
Breeder—F. Stewart, Elfrida, Ont.
Owner—W. E. Mason, Tyrrell, Ont.
Test commenced—April 3, 1908.
Age at commencement of test—2 years and 150 days.
Date of calving—April 3, 1908.
Date of calving after test—February 22, 1909.
Total production—milk, 10,121 lbs.; fat, 307·99 lbs.
Average per cent of fat, 3·04; days in milk, 296.
Production required for registration—milk, 7,912·5 lbs.; fat, 269 lbs.

No. 28 C. R. of P.—**Queen Dekol of Minster**, Reg. No. 6001.
Breeder—Richard Honey, Brickley, Ont.
Owner—Richard Honey, Brickley, Ont.
Test commenced—March 30, 1908.
Age at commencement of test—2 years and 351 days.
Date of calving—March 27, 1908.
Date of previous calving—April 7, 1907.
Date of calving after test—May 4, 1909.
Total production—milk, 9,420·75 lbs.; fat, 301·52 lbs.
Average per cent of fat, 3·20; days in milk, 365.
Production required for registration—milk, 8,470 lbs.; fat, 288 lbs.

No. 29 C. R. of P.—**Cosey of the Old Farm**, Reg. No. 7110.
Breeder—Chas. Williams, Ostrander, Ont.
Owner—M. N. Matthews, Luton, Ont.
Test commenced—March 14, 1908.
Age at commencement of test—2 years and 2 days.
Date of calving—March 13, 1908.
Date of calving after test—May 1, 1909.
Total production—milk, 11,162 lbs.; fat, 383·68 lbs.
Average per cent of fat, 3·43; days in milk, 365.
Production required for registration—milk, 7,505 lbs.; fat, 255·2 lbs.

No. 30 C. R. of P.—**Madelaine 2nd**, Reg. No. 7616.
Breeder—Neil Sangster, Ormstown, Que.
Owner—Neil Sangster, Ormstown, Que.
Test commenced—February 16, 1908.
Age at commencement of test—2 years and 2 days.
Date of calving—February 14, 1908.
Date of calving after test—April 15, 1909.
Total production—milk, 10,121·8 lbs.; fat, 365·69 lbs.
Average per cent of fat, 3·61; days in milk, 365.
Production required for registration—milk, 7,505 lbs.; fat, 255·2 lbs.

No. 32 C. R. of P.—**Lady Grey of Ormstown**, Reg. No. 7617.
Breeder—Neil Sangster, Ormstown, Que.
Owner—Neil Sangster, Ormstown, Que.
Test commenced—March 27, 1908.
Age at commencement of test—2 years and 38 days.
Date of calving—March 23, 1908.

Date of calving after test—June 23, 1909.
Total production—milk, 9,432·6 lbs.; fat, 312·70 lbs.
Average per cent of fat, 3·31; days in milk, 365.
Production required for registration—milk, 7,604·5 lbs.; fat, 258·5 lbs.

No. 37 C. R. of P.—**Aaggie Schuiling Dekol**, Reg. No. 6442.
Breeder—J. M. Van Patter, Luton, Ont.
Owner—J. M. Van Patter, Luton, Ont.
Test commenced—March 1, 1908.
Age at commencement of test—2 years and 290 days.
Date of calving—February 23, 1908.
Date of calving after test—March 30, 1909.
Total production—milk, 13,283·5 lbs.; fat, 410·15 lbs.
Average per cent of fat, 3·08; days in milk, 365.
Production required for registration—milk, 8,297·5 lbs.; fat, 282 lbs.

No. 38 C. R. of P.—**Netherland Dekol Witzyde**, No. 7665.
Breeder—J. M. Van Patter, Luton, Ont.
Owner—J. M. Van Patter, Luton, Ont.
Test commenced—April 4, 1908.
Age at commencement of test—2 years and 335 days.
Date of calving—April 4, 1908.
Date of calving after test—May 25, 1909.
Total production—milk, 11,907 lbs.; fat, 385·33 lbs.
Average per cent of fat, 3·23; days in milk, 322.
Production required for registration—milk, 8,421·25 lbs.; fat, 286 lbs.

No. 39 C. R. of P.—**Aaggie Dekol Schuiling**, Reg. No. 7666.
Breeder—J. M. Van Patter, Luton, Ont.
Owner—J. M. Van Patter, Luton, Ont.
Test commenced—April 17, 1908.
Age at commencement of test—2 years and 31 days.
Date of calving—April 16, 1908.
Date of calving after test—June 10, 1909.
Total production—milk, 10,831·5 lbs.; fat, 354·64 lbs.
Average per cent of fat, 3·27; days in milk, 365.
Production required for registration—milk, 7,585·25 lbs.; fat, 258 lbs.

No. 44 C. R. of P.—**Bessie Dekol Tensen**, Reg. No. 7852.
Breeder—Fred. Stewart, Elfrida, Ont.
Owner—Wm. E. Mason, Tyrrell, Ont.
Test commenced—April 10, 1908.
Age at commencement of test—2 years and 14 days.
Date of calving—April 10, 1908.
Date of calving after test—May 27, 1909.
Total production—milk, 10,184·5 lbs.; fat, 315·78 lbs.
Average per cent of fat, 3·10; days in milk, 345.
Production required for registration—milk, 7,538·5 lbs.; fat, 256·3 lbs.

No. 48 C. R. of P.—**Lady Elgin J.**, Reg. No. 5761.
Breeder—F. Leeson, Aylmer, Ont.
Owner—F. Leeson, Aylmer, Ont.
Test commenced—April 19, 1908.
Age at commencement of test—2 years and 362 days.
Date of calving—April 14, 1908.

Date of previous calving—April 6, 1907.
Date of calving after test—June 4, 1909.
Total production—milk, 9,679·3 lbs.; fat, 315·81 lbs.
Average per cent of fat, 3·26; days in milk, 330.
Production required for registration—milk, 8,492 lbs.; fat, 288·7 lbs.

No. 49 C. R. of P.—**Evaline Dekol**, Reg. No. 9110.
Breeder—F. Leeson, Aylmer, Ont.
Owner—F. Leeson, Aylmer, Ont.
Test commenced—March 1, 1908.
Age at commencement of test—2 years and 314 days.
Date of calving—February 28, 1908.
Date of calving after test—April 18, 1909.
Total production—milk, 13,146·4 lbs.; fat, 419·11 lbs.
Average per cent of fat, 3·19; days in milk, 365.
Production required for registration—milk, 8,363·5 lbs.; fat, 284 lbs.

No. 51 C. R. of P.—**Seymour Jessie**, Reg. No. 7397.
Breeder—Ben. Hopps, Campbellford, Ont.
Owner—W. E. Hermiston, Brickley, Ont.
Test commenced—April 21, 1908.
Age at commencement of test—1 year and 343 days.
Date of calving—April 10, 1908.
Date of calving after test—July 4, 1909.
Total production—milk, 9,072·75 lbs.; fat, 296·18 lbs.
Average per cent of fat, 3·26; days in milk, 365.
Production required for registration—milk, 7,500 lbs.; fat, 255 lbs.

No. 52 C. R. of P.—**Mary Anderson 3rd**, Reg. No. 7262.
Breeder—G. W. Clemons, St. George, Ont.
Owner—G. W. Clemons, St. George, Ont.
Test commenced—July 20, 1908.
Age at commencement of test—2 years and 163 days.
Date of calving—July 19, 1908.
Date of calving after test—August 29, 1909.
Total production—milk, 9,385·5 lbs.; fat, 358·47 lbs.
Average per cent of fat, 3·82; days in milk, 358.
Production required for registration—milk, 7,948 lbs.; fat, 270 lbs.

No. 53 C. R. of P.—**Laura Albino Dekol**, Reg. No. 7344.
Breeder—R. Honey, Brickley, Ont.
Owner—R. Honey, Brickley, Ont.
Test commenced—June 17, 1908.
Age at commencement of test—2 years and 44 days.
Date of calving—June 13, 1908.
Date of calving after test—June 20, 1909.
Total production—milk, 9,074·75 lbs.; fat, 269·03 lbs.
Average per cent of fat—2·90; days in milk, 365.
Production required for registration—milk, 7,621 lbs.; fat, 259 lbs.

No. 58 C. R. of P.—**Lucy Staple**, Reg. No. 7850.
Breeder—Fred. Stewart, Elfrida, Ont.
Owner—Wm. E. Mason, Tyrell, Ont.
Test commenced—July 13, 1908.

Age at commencement of test—2 years and 82 days.
Date of calving—July 13, 1908.
Date of calving after test—August 4, 1909.
Total production—milk, 10,321·5 lbs.; fat, 381·96 lbs.
Average per cent of fat, 3·70; days in milk, 342.
Production required for registration—milk, 7,725·5 lbs.; fat, 262·6 lbs.

No. 65 C. R. of P.—**Aaggie Mercedes**, Reg. No. 7667.
Breeder—J. M. Van Patter, Luton, Ont.
Owner—J. M. Van Patter, Luton, Ont.
Test commenced—January 3, 1909.
Age at commencement of test—2 years and 2 days.
Date of calving—January 1, 1909.
Date of calving after test—February 23, 1910.
Total production—milk, 11,745; fat, 399·8 lbs.
Average per cent of fat, 3·40; days in milk, 365.
Production required for registration—milk, 7,505 lbs.; fat, 255·2 lbs.

No. 68 C. R. of P.—**Princess Helen Dekol**, Reg. No. 7983.
Breeder—J. L. McCrea, Brockville, Ont.
Owner—Isaac Bateman, Innisfail, Alta.
Test commenced—April 7, 1909.
Age at commencement of test—2 years and 262 days.
Date of calving—April 4, 1909.
Date of calving after test—March 1, 1910.
Total production—milk, 10,997·5 lbs.; fat, 328·16 lbs.
Average per cent of fat, 2·98; days in milk, 328.
Production required for registration—milk, 8,240 lbs.; fat, 280 lbs.

No. 70 C. R. of P.—**Lassie Artis Johanna**, Reg. No. 10846.
Breeder—Nick Grimm, Ringle, Wis., U.S.A.
Owner—G. A. Brethen, Norwood, Ont.
Test commenced—January 17, 1909.
Age at commencement of test—2 years and 340 days.
Date of calving—January 16, 1909.
Date of calving after test—January 8, 1910.
Total production—milk, 11,231·75 lbs.; fat, 322·86 lbs.
Average per cent of fat, 2·88; days in milk, 303.
Production required for registration—milk, 8,435 lbs.; fat, 287 lbs.

No. 71 C. R. of P.—**Mayflower Posch**, Reg. No. 7549.
Breeder—D. H. Brown, Beith, Que.
Owner—Neil Sangster, Ormstown, Que.
Test commenced—October 4, 1908.
Age at commencement of test—2 years and 132 days.
Date of calving—October 2, 1908.
Date of calving after test—October 25, 1909.
Total production—milk, 8,852·3 lbs.; fat, 296·72 lbs.
Average per cent of fat, 3·35; days in milk, 332.
Production required for registration—milk, 7,863 lbs.; fat, 267 lbs.

No. 74 C. R. of P.—**Canaan Queen**, Reg. No. 7264.
Breeder—F. E. Came, Sault aux Recollets, Que.
Owner—F. E. Came, Sault aux Recollets, Que.
Test commenced—March 11, 1909.

Age at commencement of test—2 years and 348 days.
Date of calving—March 11, 1909.
Date of calving after test—March 26, 1910.
Total production—milk, 10,106·75 lbs.; fat, 318·4 lbs.
Average per cent of fat, 3·15; days in milk, 365.
Production required for registration—milk, 8,457 lbs.; fat, 287·5 lbs.

No. 75 C. R. of P.—**Maggie Verbelle**, Reg. No. 7860.
Breeder—B. Mallory, Frankford, Ont.
Owner—B. Mallory, Frankford, Ont.
Test commenced—February 24, 1909.
Age at commencement of test—2 years and 335 days.
Date of calving—February 22, 1909.
Date of calving after test—March 31, 1910.
Total production—milk, 10,629 lbs.; fat, 329·84 lbs.
Average per cent of fat, 3·10; days in milk, 350.
Production required for registration—milk, 8,421·25 lbs.; fat, 286·3 lbs.

No. 79 C. R. of P.—**Faforit of Downsview**, Reg. No. 7936.
Breeder—Thos. Hartley, Downsview, Ont.
Owner—Thos. Hartley, Downsview, Ont.
Test commenced—February 21, 1909.
Age at commencement of test—2 years and 110 days.
Date of calving—February 9, 1909.
Date of calving after test—March 30, 1910.
Total production—milk, 10,854·5 lbs.; fat, 383·56 lbs.
Average per cent of fat, 3·53; days in milk, 356.
Production required for registration—milk, 7,802·5 lbs.; fat, 265·28 lbs.

JERSEY.

COWS TWO YEARS OLD AND UNDER THREE.

No. 1 C. R. of P.—**Lilac of Pender**, Reg. No. 697.
Breeders—A. H. Menzies & Son, Pender Island, B.C.
Owners—A. H. Menzies & Son, Pender Island, B.C.
Test commenced—January 13, 1909.
Age at commencement of test—2 years and 25 days.
Date of calving—January 8, 1909.
Date of calving after test—February 21, 1910.
Total production—milk, 5,674 lbs.; fat, 314·15 lbs.
Average per cent of fat, 5·53; days in milk, 352.
Production required for registration—milk, 5,568·75 lbs.; fat, 220·5 lbs.

No. 2 C. R. of P.—**Lady Buttercup of Pender**, Reg. No. 698.
Breeders—A. H. Menzies & Son, Pender Island, B.C.
Owners—A. H. Menzies & Son, Pender Island, B.C.
Test commenced—January 16, 1909.
Age at commencement of test—2 years and 234 days.
Date of calving—January 16, 1909.
Date of previous calving—January 2, 1908.
Date of calving after test—March 5, 1910.
Total production—milk, 8,016 lbs.; fat, 449·70 lbs.
Average per cent of fat, 5·61; days in milk, 352.
Production required for registration—milk, 6,143·5 lbs.; fat, 243·7 lbs.

No. 3 C. R. of P.—**Lady Rose of Pender**, Reg. No. 699.
Breeders—A. H. Menzies & Son, Pender Island, B.C.
Owners—A. H. Menzies & Son, Pender Island, B.C.
Test commenced—January 13, 1909.
Age at commencement of test—2 years and 288 days.
Date of calving—January 11, 1909.
Date of previous calving—January 31, 1908.
Date of calving after test—March 4, 1910.
Total production—milk, 8,014 lbs.; fat, 427·34 lbs.
Average per cent of fat, 5·35; days in milk, 352.
Production required for registration—milk, 6,278 lbs.; fat, 249 lbs.

AYRSHIRE BULLS QUALIFIED FOR REGISTRATION.

No. 1 **Dairyman of Glenora**, Reg. No. 13475.
Daughters qualified—
1st. Susie of Hickory Hill, No. 22336.
Dam, Briery Banks Susie, 2847.
Record class, 2 years old; 6,410 lbs. milk; 302 lbs. fat.
2nd. Jubilee of Hickory Hill, No. 23480.
Dam, Jubilee of Hickory Hill, No. 12071.
Record class, 3 years old; 7,343 lbs. milk; 320 lbs. fat.
3rd. Rosalie of Hickory Hill, No. 23482.
Dam, Ladysmith, No. 12394.
Record class, 3 years old; 7,935 lbs. milk; 350 lbs. fat.
4th. Snowflake of Hickory Hill, No. 23481.
Dam, Helen of Warkworth, No. 14184.
Record class, 4 years old; 9,182 lbs. milk; 362 lbs. fat.

No. 2 **Full Bloom of Hindsward**, (Imp.) Reg. No. 16936.
Daughters qualified—
1st. Miss Orlia, No. 20098.
Dam—Isaleigh Carlina, No. 18280.
Record class, 3 years old; 7,158 lbs. milk; 333 lbs. fat.
2nd. Isaleigh Nancy 1st, No. 20525.
Dam, Nancy of Fairfield Mains, No. 11083.
Record class, 2 years old; 7,436 lbs. milk; 276 lbs. fat.
3rd. Daisy of Westland, No. 21799.
Dam, Daisy of Carlheim, No. 11548.
Record class, 2 years old; 6,950 lbs. milk; 316 lbs. fat.
4th. Isaleigh Miss Sandy, No. 23827.
Dam, Miss Sandilands, No. 8934.
Record class, 2 years old; 6,744 lbs. milk; 288 lbs. fat.

SESSIONAL PAPER No. 15c

AYRSHIRE—COWS FIVE YEARS OLD AND OVER.

R. of P.	Name.	Reg. No.	Lbs. Milk.	Lbs. Fat.	Per cent. of Fat.	Days in Milk.	Owner.	Address.
1	Alineda	15282	11,357·	409·9	3·60	365	G. A. Langelier	Cap Rouge, Que
3	Lady Stewart	11055	9,015·25	344·6	3·83	315	Alex. Hume	Menie, Ont.
5	Mitile	11529	10,202·	375·3	3·67	365	G. A. Langelier	Cap Rouge, Que
6	Lady Isabel	7467	8,884·	332·6	3·76	344	J. N. Greenshields	Danville, Que.
7	Miss Sandilands	8934	8,579·75	312·5	3·75	340	J. N. Greenshields	Danville, Que.
8	Winona of Brookhill	7479	9,843·	371·	3·77	365	J. N. Greenshields	Danville, Que.
11	Nellie Burns of Burnside	13317	8,722·25	320·5	3·66	275	R. R. Ness	Howick, Que.
12	Bargennock Heather Bell	21366	8,548·25	314·9	3·66	332	R. R. Ness	Howick, Que.
17	Lady Pearl of Burnside	13467	9,226·25	328·34	3·56	287	R. R. Ness	Howick, Que.
21	Matchless Beauty of Netherlea.	19601	8,845·	322·42	3·65	365	G. A. Langelier	Cap Rouge, Que
22	Daisy of Carlheim	11548	12,297·	386·4	3·15	360	J. N. Greenshields	Danville, Que.
27	Chapleton Swaney	25330	8,599·25	366·9	4·26	355	H. Gordon	Howick, Que.
29	Daisy Queen	9705	13,158·3	485·4	3·68	365	E. Cohoon	Harrietsville, O
31	Trixy	9707	11,222·4	446·26	3·97	365	E. Cohoon	Harrietsville,O.
38	Dolly Dutton of Ste. Anne	10005	10,424·5	440·34	4·23	350	A. C. Wells & Son	Sardis, B. C.
41	Kirsty 2nd of Neidpath	10125	9,521·2	381·9	4·00	344	W. W. Ballantyne	Stratford, Ont.
42	Bertie of Springhill	8736	10,448·25	382·26	3·66	322	R. Hunter & Sons	Maxville, Ont.
43	Little Queen 2nd	9239	9,397·	375·44	4·00	310	A. C. Wells & Son	Sardis, B. C.
47	Barton Princess	9273	9,580·5	381·3	4·00	331	A. S. Turner	Ryckmans Corners, Ont.
49	Nellie Gray of Hickory Hill	15332	9,981·75	402·88	4·03	330	N. Dyment	Clappison, Ont.
50	Neidpath Rose 3rd	10126	9,037·5	367·4	4.06	354	W. W. Ballantyne	Stratford, Ont.
55	Burnside Brown Queen	27192	8,592·	353·9	4·10	309	G. A. Langelier	Cap Rouge, Que
59	White Heather	16978	9,501·5	363·5	3·82	297	J. Begg	St. Thomas, O.
60	Nellie's Jewell	16871	9·093.5	394·6	4·34	276	J. Begg	St. Thomas,Ont
70	Primrose of Tanglewyld	15943	13,536·	529·	3·90	356	Wooddisse Bros.	Rothsay, Ont.
75	Dairymaid	13847	8,629·5	378·12	4·38	305	H. C. Hamill	Box Grove, Ont
76	Scotland's Princess	16385	10,182·75	461·02	4·53	365	A. S. Turner	Ryckmans Corners, Ont
78	Myrtle	12274	9,943·8	328·19	3·30	305	E. Cohoon	Harrietsville,O.
81	Marjorie	16535	10,783·75	461·26	4·28	324	Dir. Exp. Farm	Ottawa, Ont.
83	Annie Laurie 2nd	15588	15,134·4	598·45	3·95	365	E. Cohoon	Harrietsville,O.
85	Mariea	15136	11,428·	418·37	3·66	365	Hon. W. Owens	Montebello, Que

COWS FOUR YEARS AND UNDER FIVE.

48	Snowflake of Hickory Hill	23481	9,182·05	362·4	3·95	365	N. Dyment	Clappison, Ont.
52	Lady Menie	18727	8,005·	297·8	3·72	364	Wm. Stewart & Son	Menie, Ont..
72	Bonnie Doon	19437	9,357·	400·36	4·28	355	Wooddisse Bros.	Rothsay, Ont.
74	Molly	27600	11,268·6	372·42	3·35	296	E. Cohoon	Harrietsville,O.
80	Ethel Belle	21349	9,258·	385·66	4·15	350	J. Begg	St. Thomas, O.
82	Lassie of the Highlands	21491	9,309·1	410·54	4·41	350	F. H. Harris	Mt. Elgin, Ont.
84	Lily of the Valley	20300	8,028·37	333·55	4·16	327	Alex. Hume & Co.	Menie, Ont. .
88	Clio of the Willows	20934	8·614·	330·67	3·84	284	W. Brown	Howick, Que.

COWS THREE YEARS AND UNDER FOUR.

R. of P.	Name.	Reg. No.	Lbs. Milk.	Lbs. Fat.	Per cent of Fat.	Days in Milk.	Owner.	Address.
15	Jubilee of Hickory Hill	23480	7,343·	329·22	4·36	263	N. Dyment	Clappison, Ont.
20	Rosalee of Hickory Hill	23482	7,935·7	350·	4·41	365	N. Dyment	Clappison, Ont.
23	Primrose of Hickory Hill	15333	8,556·4	378·03	4·41	355	N. Dyment	Clappison, Ont.
24	Norena	19391	7,142·75	282·02	3·94	350	W. D. Parker	Hatley, Que.
40	Woodroffe Lady Nancy	21454	7,197·5	303·91	4·22	302	A. C. Wells & Son	Sardis, B. C.
44	Isaleigh Nancy 1st	20525	8,184·	316·16	3·86	288	J. N. Greenshields	Danville, Que.
45	Beauty of Shannon Bank	23519	7,677·	354·47	4·62	327	W. H. Tran.	Cedar Grove O.
58	Miss Orlia	20098	7,158·	333·33	4·65	365	G. A. Langelier	Cap Rouge, Q.
64	Canadian Princess	20108	11,377·55	521·91	4·59	335	A. S. Turner	Ryckmans Corners, Ont.
67	Dairy Queen of Springhill	23743	8,023·75	331·85	4·13	328	R. Hunter & Sons	Maxville, Ont.
68	Shannon Bank Frances 2nd	23520	9,133·	330·32	3·94	361	W. H. Tran	Cedar Grove,O
71	Ruth	23578	7,591·5	276·65	3·64	365	Wooddisse Bros	Rothsay, Ont.
73	Daisy	23582	7,554·	338·88	4·48	336	Wooddisse Bros	Rothsay, Ont.
77	Star's Annie Laurie	21543	8,230·3	330·87	4·02	319	E. Cohoon	Harrietsville,O.
86	Julia	23580	8,062·5	377·33	4·68	339	Wooddisse Bros	Rothsay.

COWS, TWO YEARS OLD AND UNDER THREE.

2	Lady Clare of Burnside	22293	7,959·75	307·8	3·87	299	R. R. Ness	Howick, Que.
4	Barcheskie Lucky Girl	21363	8,710·25	350·08	4·00	313	R. R. Ness	Howick, Que.
9	Susie of Hickory Hill	22336	6,419·	302·14	4·71	365	N. Dyment	Clappison, Ont
10	Monkland Dorothy	21370	6,046·75	245·38	4·07	292	R. R. Ness	Howick, Que.
13	Minnie of Elm Shade	18883	7,533·5	238·23	3·76	290	H. Gordon	Howick, Que.
14	Finlayson Rose	21369	7,163·	285·15	3·98	335	R. R. Ness	Howick, Que.
16	Barcheskie Sybil	25326	6,080·	270·9	4·45	296	H. Gordon	Howick, Que.
18	Isaleigh Nancy 1st	20525	7,439·	276·1	3·71	341	J. N. Greenshields	Danville, Que.
19	Stadacona Lilly	19257	6,228·	236·27	3·79	300	G. A. Langelier	Cap Rouge, Q.
25	Sunnymead Princess	19360	6,748·	295·16	4·37	360	W. D. Parker	Hatley, Que.
26	Adalia 2nd	22949	9,924·	366·97	3·70	365	E. Cohoon	Harrietsville,O.
28	Isaleigh Claribella	23712	8,454·75	322·55	3·80	365	J. N. Greenshields	Danville, Que.
30	Lady Brant of Neidpath	21463	6,631·	303·99	4·58	319	W. W. Ballantyne	Stratford, Ont.
31	Daisy Queen 2nd	22950	6,644·65	250·18	3·76	345	E. Cohoon	Harrietsville,O.
33	Stadacona Silver Queen	20043	6,373·	303·38	4·76	340	G. A. Langelier	Cap Rouge, Q.
34	Annie of Warkworth	21493	6,689·25	284·49	4·25	365	Alex. Hume	Menie, Ont.
35	Adalia 3rd	22948	8,845·55	326·46	3·69	365	E. Cohoon	Harrietsville,O.
36	Rosebud	22305	7,982·5	280·1	3·51	365	Jos. Thompson	Sardis, B. C.
37	Ruby Royal of the Hills	23373	6,515·5	276·45	4·24	365	A. C. Wells & Son	Sardis, B. C.
39	Dolly Dutton of Ste. Anne's 2nd	23574	6,290·	287·72	4·57	334	A. C. Wells & Son	Sardis, B. C.
46	Bessie 16th of Neidpath	21468	7,625·	330·72	4·34	358	W. W. Ballantyne	Stratford, Ont.
51	Neidpath Rose 10th	21459	6,442·2	295·99	4·60	355	W. W. Ballantyne	Stratford, Ont.
53	Daisy of Westland	21799	6,950·	316·77	4·55	355	G. A. Langelier	Cap Rouge, Q.
54	Scotia Jean	24130	5,880·25	244·98	4·16	335	W. W. Bowley	Napperton, O.
56	Ardyne Carntyne	26349	7,019·75	312·93	4·45	365	R. Hunter & Sons	Maxville, Ont.
57	Auchenbrain White Rose	26348	6,618·	278·82	4·21	363	R. Hunter & Sons	Maxville, Ont.
61	Madeline B	23601	7,135·5	292·96	4·10	365	Jas. Begg	St. Thomas, O.
62	Sybella of Springbrook	27691	7,305·9	302·24	4·13	226	A. S. Turner	Ryckmans Corners, Ont.
63	Princess	23581	6,778·75	292·	4·30	365	Wooddisse Bros	Stratford, Ont.
65	Jemima of Springbrook	27689	8,839·5	395·33	4·47	338	A. S. Turner	Ryckmans Corners, Ont.
66	Isaleigh Miss Sandy	23827	6,744·	288·75	4·28	365	G. A. Langelier	Cap Rouge, Q.
69	Lucy 4th	25101	5,782·	259·29	4·50	329	W. H. Tran	Cedar Grove,O
79	Hot Scotch Lassie	23704	6,066·	258·61	4·26	328	F. H. Harris	Mt. Elgin, Ont.
87	Madge	27700	6,663·75	301·6	4·52	346	Wooddisse Bros	Rothsay, Ont.
89	Bessie 18th of Neidpath	24610	6,461·1	293·5	4·57	352	W. W. Ballantyne	Stratford, Ont.

SESSIONAL PAPER No. 15c

HOLSTEIN FRIESIAN CLASS—FIVE YEARS OLD AND OVER.

R. of P.	Name.	Reg. No.	Lbs. Milk.	Lbs. Fat.	Per cent of Fat.	No. Days in Milk.	Owner.	Address.
2	Madam Dot 3rd's Pauline De Kol.	3708	11,518·7	438·57	3·80	303	N. Sangster.....	Ormstown, Q.
4	Dorliska Willis.....	4817	11,014·25	396·8	3·60	325	Geo. H. Caughill...	Aylmer, Ont.
5	Maggie Dorliska.....	7259	11,644·5	393·19	3·42	350	Geo. H. Caughill...	Aylmer, Ont.
7	Malahide Princess.....	4615	10,621·75	402·7	3·80	350	Geo. H. Caughill...	Aylmer, Ont.
8	Evergreen March.....	3896	15,239·25	556·7	3·65	305	G. W. Clemons.....	St. George, O
14	Netherland Aaggie.....	2478	13,545·5	439·26	3·24	325	J. M. Van Patter....	Luton, Ont.
18	Netherland Tensen.....	3423	15,023·5	473·62	3·15	365	A. E. Smith & Son..	Millgrove, Ont.
21	Rosa Lee De Kol.....	3127	13,990·5	479·28	3·42	365	B. Mallory.....	Belleville Ont.
22	Snowflake Queen De Kol of Minster	4535	13,089·	443·24	3·38	365	R. Honey.....	Brickley, Ont.
23	Sarah Jane 2nd.....	3604	11,428·5	426·54	3·73	364	W. J. Bailey.....	Nober, Ont.
31	Madam Dot 3rd's Pauline De Kol.	3706	12,734·1	487·23	3·82	365	N. Sangster.....	Ormstown, Q.
33	Bontje Paul.....	2660	13,011·7	445·83	3·43	333	N. Sangster.....	Ormstown, Que.
35	Vida Princess 3rd.....	2774	14,649·	438·1	3·00	363	J. M. Van Patter....	Luton, Ont.
36	Vida Princess 4th.....	2775	18,482·75	602·6	3·26	365	J. M. Van Patter....	Luton, Ont.
41	Netherland Aaggie De Kol....	6439	21,666·	704·8	3·25	365	J. M. Van Patter....	Luton, Ont.
46	Lady Elgin A.....	4918	11,487·2	442·5	3·85	365	F. Leeson.....	Aylmer, Ont.
47	Edna Wallace.....	3505	16,367·8	542·6	3·31	365	F. Leeson.....	Aylmer, Ont.
57	Lilly Westwoud 2nd.....	3966	11,593·3	370·	3·19	323	Thos. Hartley.....	Downsview, O.
60	Bell De Kol Queen 2nd.....	3523	15,447·25	495·29	3·20	344	Thos. Hartley.....	Cassel, Ont.
63	Spotted De Kol Lady.....	8118	13,212·25	473·12	3·57	352	S. Lemon.....	Lynden, Ont.
64	Sevangeline 2nd.....	4340	10,655·	373·1	3·50	300	S. Lemon.....	Lynden, Ont.
69	Bertha Black.....	2327	15,224·37	530·	3·48	327	Otto Suhring	Sebringville, O.
72	Springbrook Queen.....	1302	11,565·18	363·	3·14	360	S. Lemon.....	Lynden, Ont.
73	Countess Carrie Mereedes.....	8102	13,400·	383·3	2·86	347	S. Lemon.....	Lynden, Ont.
76	Trenton Pride.....	3491	12,792·4	378·61	2·96	332	B. Mallory.....	Belleville, Ont.
78	Rideau Della, Princess De Kol	4612	15,069·7	464·33	3·08	305	C. Duff Nelles.....	Boston, Ont.
80	Shawesse Beauty Seeond.....	12157	13,694·3	440·36	3·21	365	H. Bollert.....	Cassel, Ont.

FOUR YEARS OLD AND UNDER FIVE.

1	Rhoda's Queen.....	4832	12,597·9	422·76	3·35	270	N. Sangster.....	Ormstown, Q.
9	Ruth Tensen De Kol.....	6940	13·289,	407·13	3·06	320	A. E. Smith & Son..	Millgrove, Ont.
16	Lucretia Borgia.....	4432	10,697·25	419·73	3·92	313	G. W. Clemons.....	St. George, Ont.
19	Glenside Nerissa.....	5395	12,459·4	397·6	3·19	342	G. H. McKenzie....	Thornhill, Ont.
20	Glenside Laura.....	5394	11,651·2	341·21	2·93	335	G. H. McKenzie....	Thornhill, Ont.
40	Johanna Netherland De Kol..	4290	14,043·25	473·81	3·37	340	Miss G. Peacock....	Mt. Salem, Ont.
45	Vera H.....	4999	14,107·5	464·	3·29	365	F. Leeson.....	Aylmer, Ont.
54	Lulu Glaser.....	5099	12,499·98	463·17	3·70	260	S. Lemon.....	Lynden, Ont.
56	May Echo Peitertje.....	4606	11,720·5	358·25	3·06	335	B. Mallory.....	Belleville, Ont.
59	Lina Netherland Abbekerk...	12159	12,773·31	419·78	3·28	288	H. Bollert.....	Cassel, Ont.
77	Daisy Verbelle.....	5079	12,268·8	412·29	3·36	360	H. Bollert.....	Belleville, Ont.
81	Jesse Inka Keyes.....	6291	12,860·5	417·73	3·24	362	J. A. Caskey.....	Madoc, Ont.

THREE YEARS OLD AND UNDER FOUR.

10	Bonnie Tensen.....	5818	13,215·5	436·5	3·30	365	O. D. Bales.....	Lansing, Ont.
11	Helbon De Kol.....	5631	16,346·	568·47	3·48	365	E. Laidlaw & Sons..	Aylmer, Ont.
25	May Echo Verbelle.....	5320	10,867·	345·7	3·18	322	B. Mallory.....	Belleville, Ont.
34	Verona.....	6419	10,080·1	310·27	3·07	322	N. Sangster.....	Ormstown, Que.
42	Faforit Butter Girl.....	5870	13,272·3	428·3	3·22	342	Thos. Hartley.....	Downsview, O.
43	Nierop Netherland Bess.....	6694	13,052·8	434·14	3·32	360	Thos. Hartley.....	Downsview, O.
50	Sherwood Edna's Faforit.....	6199	12,605·25	394·73	3·13	365	C. H. Shaver.....	Davisville, Ont.
55	Julia Arthur 2nd.....	6977	9,019·	312·17	3·46	365	G. W. Clemons.....	St. George, Ont.
61	Maple Grove Belle 2nd.....	6540	12,594·47	419·02	3·33	330	H. Bollert.....	Cassel, Ont.
62	Luella Tensen.....	8456	13,504·6	374·09	2·77	336	S. Lemon.....	Lynden, Ont.
66	Seymour Meehthilde De Kol.	5974	10,867·	364·38	3·35	350	J. A. Caskey.....	Madoc, Ont.
67	Jesse De Kol Eeho.....	6295	12,905·	383·56	2·97	365	J. A. Caskey.....	Madoc, Ont.
82	Canaan Sherwood Orpha.....	7298	9,358·5	297·28	3·17	365	F. E. Came.....	Ahunt ic, Que.

TWO YEARS OLD AND UNDER THREE.

R. of P.	Name.	Reg. No.	Lbs. Milk.	Lbs. Fat.	Per cent. of Fat.	Days in Milk.	Owner.	Address.
3	Verona	6419	8,788·2	294·99	3·34	319	N. Sangster	Ormstown, Que.
6	Dorothy Dorliska	5285	9,407·5	335·98	3·57	327	G. H. Caughell	Aylmer, Ont.
12	Wopke Posch	7406	7,870·87	287·38	3·65	318	E. Laidlaw & Son	Aylmer, Ont.
13	Ina Pauline Mercedes	6063	12,060·37	454·65	3·59	359	H. Bollert	Cassel, Ont
15	Beulah Colantha	6907	9,030·1	296·79	3·28	365	N. Sangster	Ormstown, Que.
17	Rose De Kol Teake	6976	9,366·15	306·5	3·27	312	G. W. Clemons	St. George, Ont.
26	Bell Tensen	6736	10,927·	350·49	3·20	325	Wm. E. Mason	Tyrell, Ont.
27	Minnie Springbrook	6735	10,121·	307·98	3·04	296	Wm. E. Mason	Tyrrell, Ont.
28	Queen De Kol of Minster	6001	9,420·75	301·5	3·20	365	R. Honey	Brickley, Ont.
29	Cosey of the Old Farm	7110	11,162·	383·6	3·43	365	M. N. Matthews	Luton, Ont.
30	Madeline 2nd	7616	10,121·8	365·69	3·61	365	N. Sangster	Ormstown, Que.
32	Lady Grey of Ormstown	7617	9,432·6	312·7	3·31	365	N. Sangster	Ormstown, Que.
37	Aaggie Schulling De Kol	6442	13,283·5	410·14	3·08	365	J. M. Van Patter	Luton, Ont.
38	Netherland De Kol Witzyde	7665	11,907·	385·33	3·23	322	J. M. Van Patter	Luton, Ont.
39	Aggie De Kol Schulling	7666	10,831·5	354·6	3·27	365	J. M. Van Patter	Luton, Ont.
44	Bessie De Kol Tensen	7852	10,184·5	315·78	3·10	345	W. E. Mason	Tyrell, Ont.
48	Lady Elgin J	5761	9,679·3	315·81	3·26	330	F. Leeson	Aylmer, Ont.
49	Evaline DeKol	9110	13,146·4	419·1	3·18	365	F. Leeson	Aylmer, Ont.
51	Seymour Jessie	7397	9,072·75	296·18	3·26	365	W. E. Hermiston	Brickley, Ont.
52	Mary Anderson 3rd	7262	9,385·5	358·47	3·82	358	G. W. Clemons	St. George, Ont.
53	Laura Albino DeKol	7344	9,074·75	269·02	2·90	365	R. Honey	Brickley, Ont.
58	Lucy Staples	7850	10,321·5	381·96	3·70	342	Wm. E. Mason	Tyrrell, Ont.
65	Aaggie Mercedes	7667	11,745·	399·8	3·40	365	J. M. Van Patter	Luton, Ont.
68	Princess Helen DeKol	7983	10,997·5	328·18	2·98	328	Isaac Bateman	Innisfail, Alta.
70	Lassie Artis Johanna	10846	11,231·75	322·86	2·88	303	G. A. Brethen	Norwood, Ont.
71	Mayflower Posch	7549	8,852·3	296·72	3·35	332	N. Sangster	Ormstown, Que.
74	Canaan Queen	7264	10,106·75	318·4	3·15	365	F. E. Came	Ahuntsic, Que.
75	Maggie Verbelle	7860	10,629·9	329·84	3·10	350	B. Mallory	Frankfort, Ont.
79	Faforit of Downsview	7936	10,854·5	383·56	3·53	356	Thos. Hartley	Downsview, O.

JERSEYS—CLASS TWO YEARS AND UNDER THREE.

1	Lilac of Pender	697	5,674·	314·15	5·53	352	A. H. Menzies	Pender Island, B.C.
2	Lady Buttereup of Pender	698	8,016·	449·7	5·61	352	A. H. Menzies	Pender Island, B.C.
3	Lady Rose of Pender	699	8,014·	427·34	5·35	352	A. H. Menzies	Pender Island, B.C.

FRENCH CANADIAN COWS FIVE YEARS AND OVER.

1	Fancy	6252	7,425·75	318·8	4·30	334	T. B. Macaulay	Hudson Heights Que.
4	Fortune	757	7,158·25	330·48	4·61	302	T. B. Macaulay	Hudson Heights Que.

COWS TWO YEARS AND UNDER THREE.

2	Garceau 3	6502	5,090·43	207·08	4·10	365	G. Garceau	Pointe duLac,Q.
3	Douarnenaise	1020	4,724·25	221·91	4·70	284	T. B. Macaulay	Hudson Heights Que.
5	Orange Blos om	886	5,333·5	280·55	5·26	365	T. B. Macaulay	Hudson Heights Que.

APPENDIX XXIII.

REPORT OF THE INTERNATIONAL COMMISSION ON THE CONTROL OF BOVINE TUBERCULOSIS.

OTTAWA, January 12, 1911.

To the Honourable
The Minister of Agriculture,
Ottawa.

SIR,—I have the honour to transmit herewith the first report of the International Commission on Bovine Tuberculosis, appointed by the American Veterinary Medical Association at its Annual Meeting in Chicago, 1909.

In my capacity as Chairman of the Commission, I had the honour of presenting this report to the parent association at its annual meeting in San Francisco in September, 1910, when it received the unanimous approval of that body, which at the same time passed a resolution thanking the Departments of Agriculture of the United States and Canada, and the other governmental bodies, university authorities, and private individuals, who had assisted in the work.

In view of the importance of the subject, I would recommend that the report be published for distribution throughout the Dominion.

I have the honour to be, sir,
Your obedient servant,

J. G. RUTHERFORD,
Veterinary Director General and
Live Stock Commissioner;
Chairman of Commission.

The American Veterinary Medical Association, in Annual Meeting assembled, at Chicago, Illinois, in the month of September, in the year nineteen hundred and nine, constituted the following gentlemen an International Commission to study the methods of the control of Bovine Tuberculosis, and to submit a report to the Association on the occasion of its next annual meeting.

J. G. Rutherford,
Leonard Pearson,
V. A. Moore,
Hon. W. D. Hoard,
Frederick Torrance,
M. H. Reynolds,
Hon. W. C. Edwards,
C. A. Hodgetts,
J. R. Mohler,
Louis F. Swift,
J. W. Flavelle,
E. C. Schroeder.

The Commission met at Buffalo, New York, on the thirteenth day of December, nineteen hundred and nine, and elected as Chairman, Dr. J. G. Rutherford, of Ottawa, Canada, and as Secretary, Dr. M. H. Reynolds, of St. Paul, Minnesota.

Owing to the death of Dr. Leonard Pearson, and the inability to act of Mr. Louis Swift, the President appointed in the stead of these two gentlemen respectively, Dr. M. P. Ravenel, of Madison, Wisconsin, and Mr. T. W. Tomlinson, of Denver, Colorado. Later at the request of the Commission the President appointed Mr. J. J. Ferguson, of Chicago, Ill., as a representative of the United States Packing Industry, and Dr. J. N. Hurty, of Indianapolis, Indiana, as representative of the Medical Health Officers of the United States.

MEMBERS OF THE INTERNATIONAL COMMISSION ON THE CONTROL OF BOVINE TUBERCULOSIS.

J. G. Rutherford, C.M.G., V.S., H.A.R.C.V.S., Veterinary Director General and Live Stock Commissioner of the Dominion of Canada, Ottawa, Canada; Chairman.

M.H. Reynolds, D.V.M., Professor of Veterinary Science, College of Agriculture and Experiment Station, University of Minnesota, St. Anthony Park, St. Paul, Minn.; Secretary.

Hon. W. C. Edwards, Senator, Canadian Parliament, Ottawa, Canada.

J. J. Ferguson, B.S.A., head of the Animal Foods Branch, Swift & Co., Chicago, Ill.

J. W. Flavelle, LL.D., Governor, University of Toronto; President, William Davies Packing Co.; Toronto, Canada.

Hon. W. D. Hoard, ex-Governor of Wisconsin; Editor of 'Hoard's Dairyman;' Fort Atkinson, Wis.

Charles A. Hodgetts, M.D., C.M., L.R.C.P., Chief Medical Adviser, Commission on Conservation for Canada, Ottawa, Canada.

J. N. Hurty, M.D., Secretary, State Board of Health of Indiana, Indianapolis, Ind.

John R. Mohler, A.M., V.M.D., Chief of the Pathological Division, Bureau of Animal Industry, United States Department of Agriculture, Washington, D.C.

SESSIONAL PAPER No. 15c

VERANUS A. MOORE, B.S., M.D., Director of the New York State Veterinary College Cornell University, Ithaca, N.Y.

MAZYCK P. RAVENEL, M.D., Professor of Bacteriology, University of Wisconsin, Madison, Wis.

E.C. SCHROEDER, M.D.V., Superintendent of Experimental Station, Bureau of Animal Industry, United States Department of Agriculture, Bethesda, Md.

T. W. TOMLINSON, Secretary, American National Live Stock Association, Denver, Col.

FREDERICK TORRANCE, B.A., D.V.S., Director of the Faculty of Comparative Medicine, University of Manitoba, Winnipeg Canada.

TO THE PRESIDENT OF THE
AMERICAN VETERINARY MEDICAL ASSOCIATION:

Owing to the great economic and sanitary significance of animal tuberculosis to the live stock industry of America, and the many and varied factors which must of necessity be taken into account in formulating successful measures for its eradication, the American Veterinary Medical Association, at its meeting in Chicago in September, 1909, appointed the International Commission on the Control of Bovine Tuberculosis. The Commission was instructed to study the problem of tuberculosis among cattle and to report at the next meeting of the Association upon reasonable and economically practicable methods or systems to be recommended to both officials and live stock owners, for eradicating this great scourge of domesticated animals.

It is recognized that tuberculosis is widely prevalent among cattle and other animals and that the frequency with which this great evil occurs is increasing rather than declining. As tuberculosis is one of the strictly preventable infections, there is good ground for the belief that through the formulation and enforcement of proper regulations the disease may eventually be entirely suppressed.

The Commission has held four meetings as follows:—Buffalo, N.Y., December 13 and 14, 1909; Detroit, Mich., March 1 and 2, 1910; Ottawa, Canada, May 19, 20 and 21, 1910; Madison, Wis., June 27 and 28, 1910, all of which were well attended, very few of the members having, on any occasion, been absent. The Commission begs to present as a result of its labours the following report which, although brief, will, on examination, be found to comprise the principal points essential to the promulgation of a comprehensive and practical policy such as may reasonably be adopted by any governmental body interested in the control of bovine tuberculosis.

It is quite unnecessary, in view of the extensive knowledge already possessed by all who are familiar with the efforts which have hitherto been made to secure control of bovine tuberculosis, to dwell at any length upon the importance of the subject or upon the conditions which led to the formation of the Commission.

In view of the personnel of the Commission as selected by the American Veterinary Medical Association, and of the fact that so much information on the subject has been made available through the work of similar bodies in other countries, and the researches of scientific and practical men in America and elsewhere, the Commission has not deemed it necessary to take any evidence either from expert witnesses or others. The members fully understand that the purpose which their appointment was intended to serve was less the acquisition of new knowledge regarding bovine tuberculosis, than the careful study of the knowledge already available, and of the thoughts and opinions of those most entitled to speak with authority on the subject. The conclusions reached in this report are, therefore, simply the outcome of an earnest and thoughtful consideration of the various modern aspects and phases of

the problem, with the object of crystallizing public opinion and so clearing the way for legislative action. They realized also that they could deal with fundamental principles only, and that the details of any policy which they might outline, must, in each case, be worked out by the duly authorized and responsible representatives of the community immediately concerned. They nevertheless deemed it essential to study closely the history of the various efforts hitherto made by such countries throughout the world as have attempted to legislate on the subject. This naturally led to the gradual elimination of all methods other than such as might reasonably be adopted by any community desiring, in the full light of present day knowledge, to undertake the control of bovine tuberculosis.

It was felt, in view of the prevalence of the disease, especially in some localities and among certain classes of cattle, the difficulty of providing a sufficient number of trained officials and the large economic questions involved, to say nothing of the enormous expenditure, that it would be unwise, for the present at least, to seriously discuss a policy of universal compulsory testing and slaughter. Such a policy might perhaps be adopted with advantage by a small community, or one in which the disease existed to a very limited extent, but speaking generally, especially in view of past experiences in this line, it was thought better to omit it entirely from the recommendations of the Commission.

All other methods of dealing with bovine tuberculosis which have been recommended or tried in various communities, were thoroughly discussed, with the object of discarding weak points and adopting such features as might be deemed worthy of a place in the official findings of the Commission. Every phase of the subject was in this way fully and freely considered, it being thought best to cover the whole ground as completely as possible before coming to a definite decision on any one point.

In order to still further minimize the risk of omitting from the deliberations of the Commission any phase of the question, four committees were appointed at the first meeting to deal respectively with:—

1. Education and legislation,
2. Location of tuberculosis,
3. Dissemination,
4. Disposition of tuberculous animals.

The appointment of these committees proved to be of the greatest possible value in concentrating the energies of the various members upon those branches of the subject with which they were most familiar, and their reports presented at subsequent meetings enabled the Commission to reach satisfactory conclusions much more rapidly than would otherwise have been the case.

As a means of furnishing information as to the reasons for these conclusions and the manner in which they were reached, the Commission would recommend that the reports of the committees should be published as an appendix to this report.

The Commission recognizing after careful study that the tuberculin test is the fundamental factor in any policy having for its object the control of bovine tuberculosis, decided that a pronouncement to that effect should properly occupy a foremost place.

RESOLUTIONS.

Based on the information contained in the reports of its committees and on such other information as was brought out in the general discussions of the Commission, the following resolutions were adopted for presentation to the American Veterinary Medical Association.

1. *Dissemination.*

As a general policy to be observed, all contact between tuberculous and healthy cattle and between healthy cattle and stables, cars, &c., which may contain living tubercle bacilli should be prevented. To accomplish this the following specific recommendations are made:—

(1) There should be no sale or exchange of animals affected with tuberculosis except for immediate slaughter or for breeding purposes under official supervision.

(2) That the managements of live stock shows should give preference to cattle known to be free from tuberculosis, either by providing special classes for such cattle or in some other practical way, and should also take every precaution to prevent contact between such animals and those not known to be free from disease.

(3) All live stock shippers should take every precaution to see that cars furnished are thoroughly cleansed and disinfected before use.

2. Tuberculin Test.

(1) That tuberculin, properly used, is an accurate and reliable diagnostic agent for the detection of active tuberculosis.

(2) That tuberculin may not produce a reaction under the following conditions:—

(*a*) When the disease is in a period of incubation.

(*b*) When the progress of the disease is arrested.

(*c*) When the disease is extensively generalized.

The last condition is relatively rare and may usually be detected by physical examination.

(3) On account of the period of incubation and the fact that arrested cases may sooner or later become active, all exposed animals should be retested at intervals of six months to one year.

(4) That the tuberculin test should not be applied to any animal having a temperature higher than normal.

(5) That any animal having given one distinct reaction to tuberculin should thereafter be regarded as tuberculous.

(6) That the sub-cutaneous injection of tuberculin is the only method of using tuberculin for the detection of tuberculosis in cattle which can be recommended at the present time.

(7) That tuberculin has no injurious effect on healthy cattle.

3. Evidence from Tuberculin Test.

That a positive reaction to tuberculin in any properly conducted test, official or otherwise, in any animal in any herd, shall be considered evidence sufficient upon which to declare the herd to be infected.

4. Compulsory Notification.

That this Commission recommends the passage of legislation providing for the compulsory notification by owners and by veterinarians of the existence of tuberculosis in a herd, whether such existence be made known by detection of clinical cases or by the tuberculin test.

5. Location through Slaughter.

This Commission recognizes that the discovery of tuberculosis in animals slaughtered for food purposes furnishes one of the best possible means of locating the

disease on the farm, and therefore recommends the adoption of some system of marking, for purposes of identification, all cattle three years old and over, shipped for slaughter.

As tuberculosis of hogs is almost invariably due to bovine infection, this recommendation should also be made to apply to hogs of any age shipped for slaughter.

It is further recommended that the discovery of tuberculosis in animals coming under government inspection should be used whenever identification is possible, as a means of locating infected herds and premises. All such cases should be reported to the proper authorities for control action.

6. Disposition of Tuberculous Animals.

The Commission Plan.—(1) As a general policy in the eradication of tuberculosis the separation of healthy and diseased animals, and the construction of a healthy herd are recommended.

In order to accomplish this, the following recommendations are made:—

1. If the herd is found to be extensively infected, as shown by the tuberculin test or clinical examination, even the apparently healthy animals in it should be regarded with suspicion, until they have been separated from the reacting animals for at least three months.

If, after the expiration of this time, they do not react to the tuberculin test, they may be considered healthy and dealt with accordingly.

It is recommended that a herd extensively infected should not be treated by the method of general separation, but that the construction of a new herd from the offspring only is advisable.

2. If the herd is found, by either or both of the above methods, to contain a relatively small proportion of diseased animals, separation of the diseased animals from the healthy animals, and the construction of a sound herd from the healthy animals, and the offspring of both, is advocated.

As a working basis in carrying out these principles, we advise:—

(*a*) That herds containing 50 per cent or more of diseased animals be treated as coming under section 1.

(*b*) That herds containing under 15 per cent of diseased animals be treated as coming under section 2.

(*c*) That herds falling between these figures be graded according to the option of the owner.

(*d*) That it shall be the prerogative of the owner to reject either plan and have his herd dealt with by removal and slaughter of diseased animals, with or without compensation, according to the public policy in operation.

(2) That when by any means the officials properly charged with the control of tuberculosis become aware of its existence in a herd to which a policy of slaughter and compensation cannot reasonably be applied, such herd must be dealt with by the owner, under Government supervision, on the principle of the separation of all sound animals from those affected. Such separation must be effected by treating the whole herd as diseased, and rearing the calves separately, either on pasteurized milk or the milk of healthy cows, or when the number of those affected is so small as to warrant such a course, by the application to the whole herd, from time to time, under official supervision, of the tuberculin test, and the entire segregation of all animals found to react.

In the event of any owner refusing or neglecting to adopt either of the above methods, his entire herd to be closely quarantined, and sales therefrom to be entirely prohibited.

(3) That a policy of compensation be recommended as useful and usually necessary as a temporary measure.

(4) That, when slaughter is necessary, in order to avoid economic loss, every effort should be made to utilize as far as possible the meat of such animals as may be found fit for food on being slaughtered under competent inspection.

(5) The details of the Commission Plan will be found fully set forth in the Appendix to this report.

7. Prevention.

(1) That with the object of preventing the spread of infection, persons buying cattle for breeding purposes or milk production should, except when such purchases are made from disease-free herds, which have been tested by a properly qualified person, purchase only subject to the tuberculin test. In order to assist in the proper carrying out of this suggestion, the Commission recommends that official authorities should adopt such regulations as will prevent the entry to their respective territories of cattle for breeding purposes or milk production unless accompanied by satisfactory tuberculin test charts.

(2) That all milk and milk by-products used as food should be properly pasteurized unless derived from cows known to be free from tuberculosis.

8. Control of Tuberculin Test.

That the Commission recommends the passage of legislation which will prevent the sale, distribution or use of tuberculin by any persons other than those acting with the full knowledge, or under the direction, of official authorities.

9. Education.

As a clear knowledge of the cause and character of tuberculosis among animals, the modes of dissemination and its significance as an economic and as a public health problem, underlie an intelligent adherence to the principles that must be observed in all efforts for eradication, as well as the establishment of proper co-operation in the great work between physicians, veterinarians, livestock owners, legislators, and the public generally, it is recommended that a widespread campaign of education be undertaken. To accomplish this end it is recommended that, first of all, a simple pamphlet on bovine tuberculosis be written, in which the language used shall be of such character that every person of average intelligence shall be able to read it without being mystified by technical terms or phrases. This pamphlet should be published with the endorsement of the American Veterinary Medical Association and the special endorsement and consequent authority of the International Commission on Bovine Tuberculosis Control.

10. Publicity.

In concluding its work the Commission desires to especially appeal to the press, metropolitan, agricultural, and local, to join in the work of extending as much as possible among the people the conclusions here arrived at. The vital importance of the life of farm animals to the welfare of all classes of society needs no argument in its support. The aim and sole purpose which has actuated this Commission has been to arrive at the soundest conclusions possible in the light of the best knowledge obtainable.

11. Legislation.

It is recommended that legislation regarding the control and eradication of tuberculosis among domestic animals be made uniform; that the laws of the United States and Canada and other American countries for the admission into America of

animals from without be made stringent and as much alike as possible; and that the laws governing the interstate and interprovincial movement of cattle and that between different American countries be harmonized.

The laws governing interstate and interprovincial movement of cattle should be of such character that every state and every province will be free in its eradication work from unnecessary difficulties due to the existence of the disease in other states and provinces.

Legislation is especially required to prevent the various frauds which interfere with the satisfactory use of tuberculin as a diagnostic agent for tuberculosis, as well as for official supervision over all tuberculin sold to be used by veterinarians and others.

12. Sanitation.

In the eradication of tuberculosis it should be kept in mind that, in addition to protecting the animals against exposure to tubercle bacilli, it is desirable to make them as resistant to infection as possible. This can be done by stabling them in clean, disinfected and properly lighted and ventilated barns, giving them abundant clean water and nutritious food, a sufficient amount of daily exercise in the open air, and attending generally to those conditions which are well known to contribute to the health of animals.

The daily removal of manure from stables, and water tight floors and good drainage in stables are urgently recommended.

Young stock particularly should be raised as hardy as possible and should be accustomed to liberal exercise and living in the open.

13. Immunization.

That as none of the various methods for the immunization of animals against tuberculosis have passed sufficiently beyond the experimental stage, the Commission is unable to endorse any of these for practical use at the present time.

14. Animal Tuberculosis and Public Health.

While the members recognize that the subject with which this Commission is primarily intended to deal is the control and eradication of tuberculosis among animals as an economic problem, they cannot feel satisfied without declaring their recognition of the fact that tuberculosis among animals is also an important public health problem. Considered as such, the eradication of tuberculosis among animals should have the approval and support of all those persons who are interested in curtailing human suffering and prolonging human life.

15. General Statement.

The members of the Commission wish it to be clearly understood that they recognize the limitations of a report necessarily based on actual and not on theoretical conditions. They fully realize that in the event of the policy of which their recommendations form the framework, being anywhere adopted even in its entirety, much greater benefit will be derived, at least for some time, from its educative than from its executive features.

The control, to say nothing of the eradication, of bovine tuberculosis, is impossible of achievement, without the hearty co-operation of the men who are actually engaged in the cattle industry. In order to secure this co-operation, it will doubtless be necessary, in most communities, to carry on an active and prolonged educational campaign.

It is apparent that in the dissemination of practical and reliable information regarding the disease, it will be possible to employ a very large variety of methods. Many of these methods, such as bulletins, lectures and actual demonstrations of disease, having already been found valuable, will doubtless continue to be largely used.

It must not be forgotten, however, that in this, as in any other educative process, a measure of disciplinary control is essential to success. Needless to say such control can be secured only by the passage of legislation which, while clear and comprehensive, must, at the same time be sufficiently conservative to avoid exciting alarm or arousing antagonism on the part of owners especially of valuable herds.

The best law ever framed can be made an utter failure by stupid or injudicious administration, while, on the other hand, the most drastic legislation can be rendered acceptable if enforced with reasonable tact and diplomacy. Provided, therefore, that these qualities, combined with integrity, thoroughness and determination, are available for administrative purposes, the members of the Commission are convinced that the enforcement of a law based on their recommendations, will prove to be far the most powerful and effective educational agency which could possibly be employed.

In concluding its report, the Commission would suggest that the Association should make such provision as may be necessary to carry on the work either by continuing the Commission as at present constituted or with such changes in the personnel as may be considered desirable.

(Signed) Wm. C. Edwards.
J. N. Hurty.
E. C. Schroeder.
J. J. Ferguson.
J. R. Mohler.
T. W. Tomlinson.
J. W. Flavelle.
V. A. Moore.
F. Torrance.
W. D. Hoard.
Mazyck P. Ravenel.
Chas. A. Hodgetts.
J. G. Rutherford,
Chairman.
M. H. Reynolds,
Secretary.

APPENDICES TO THE REPORT OF THE INTERNATIONAL COMMISSION ON THE CONTROL OF BOVINE TUBERCULOSIS.

Appendix A—Report of the Committee on Education and Legislation.
Appendix B—Report of the Committee on Location of Tuberculosis.
Appendix C—Report of the Committee on Dissemination.
Appendix D—Report of the Committee on the Disposition of tuberculous animals.
Appendix E—Details of the Commission plan for dealing with tuberculous animals.

APPENDIX A.

REPORT OF COMMITTEE ON EDUCATION.

The committee on education respectfully submits the following:—

Bovine tuberculosis has become widely distributed throughout the United States and Canada and it has been determined that efficient systems or methods for its eradication and prevention either under the supervision of the state or nation or by the cattle owners themselves, are of necessity based on a knowledge of the nature of the disease and its means of dissemination.

Experience has shown that the principles of eradication and prevention may be successfully applied by individual owners of infected cattle, independent of state assistance. Such individual aid is essential in conjunction with state or national assistance in the prompt eradication of the disease from infected herds and the prevention of its entry to non-infected herds.

Therefore, it is the sense of this committee that every possible means should be employed for educating the cattle owners and the general public concerning the nature of tuberculosis; the care and precautions necessary to prevent its entrance into herds already free from the disease; and in methods for its eradication from herds where it now exists.

Further, this committee approves of the following methods for instructing laymen, practising veterinarians, practitioners of human medicine and health officers in the nature and control of bovine tuberculosis, namely:—

1. By the publication in agricultural and dairy papers of short, accurate and carefully prepared articles on bovine tuberculosis.

2. By the publication of appropriate articles on bovine tuberculosis in veterinary, medical and sanitary papers and journals.

3. By recommending to agricultural societies, granges and directors of farmers' institutes and unions, and especially those interested in creameries and cheese factories, that lectures on bovine tuberculosis, its nature and control, be made a part of their programmes and that, so far as practicable, demonstrations be held.

4. That those having in charge the arrangement of town, country and state fairs be requested to provide lectures on bovine tuberculosis, and, if practicable, to hold public demonstrations at their annual meetings.

5. By placing a copy of the report of the Commission in the hands of the deans or directors of all veterinary and medical colleges and schools of sanitary science in the United States and Canada with recommendations that special emphasis be placed in their courses of instruction on the nature of bovine tuberculosis and methods for its control.

6. That a pamphlet dealing with the nature of bovine tuberculosis and methods for its control should be written in language intelligible to the layman. This pamphlet should have the approval of this Commission and the endorsement of the American Veterinary Medical Association. It should be published for free distribution.

7. That departments of agriculture, state veterinarians, live stock sanitary boards and others interested in the official control of bovine tuberculosis be requested to promote as much as possible the educational features of their work, with the object of obtaining more support and co-operation from cattle owners.

The methods suggested for carrying out an educational propaganda are not to be considered at the exclusion of any and all other ways by which the public may become informed on the nature of bovine tuberculosis, its economic importance and

the necessity for an intelligent and united effort on the part of cattle owners and those having charge of the control of animal diseases to eradicate this great scourge.

The committee is of the opinion from the history of the legislation regarding bovine tuberculosis in those states and countries which have attempted to deal radically with the problem, as well as from the special information which has been furnished by this committee to its members, and the light thrown upon the subject in the discussions at its several meetings, that, in order to avoid friction and failure, all important legislation with reference to tuberculosis must be prepared with due consideration for the condition of public sentiment and information on this subject.

That tuberculosis control work should be developed in a progressive way.

That tuberculin tests made at a distance for public recognition (for example, in other states or foreign countries) can only be done satisfactorily by official veterinarinans.

That the Delepine or Manchester plan of tuberculosis free areas gradually extended seems worthy of cautious trial.

(Sgd.) M. H. Reynolds, *Chairman.*
W. D. Hoard,
J. G. Rutherford.

GOV. HOARD'S REPORT.

EDUCATIONAL MEANS FOR THE SUPPRESSION AND CONTROL OF BOVINE TUBERCULOSIS.

Mr. President and Gentlemen of the Commission:

I place a high value on the work this Commission may do if performed wisely, in shaping the conviction and purpose of the people of Canada and the United States concerning the prevention and control of bovine tuberculosis.

As yet, that conviction is but little more than an ill-defined dread of something not clearly understood by the great mass of farmers. Added to this dread is a hope stronger yet, that the evil is not as great as has been asserted; that it is a scare that will soon pass over. As yet, in the minds of farmers and breeders generally, especially in those localities where demonstration work has not been done, there is a strong undercurrent of conviction that all this talk about the disease is an interested plea of the veterinarians, that the trouble does not amount to much if the doctors and editors would hold their tongues and pens.

Just as long as this bank of fog exists, it will hamper all legislation and individual effort in getting rid of the difficulty. At the bottom of the matter is a widespread ignorance on the part of the farmers as to the danger that threatens them; it is difficult to arouse them out of their conservatism, for as yet, all they know about it is talk.

The conservatism of intelligence is vastly different from that which exists because of a lack of knowledge. The first demands more light; the latter dreads light.

From what I have seen in Wisconsin, I am convinced that the most powerful aid to that action against the disease which this Commission is so anxious to bring about, is public demonstration. One animal slaughtered before a body of farmers, and the diseased parts exposed to their plain view, is worth more to foster conviction and inspire effort than anything else that can be done. If the federal and state governments would devote means for this demonstration work, it would prove a most powerful educator. Public agitation, in farmers gatherings, and the talk of the agricultural press is useful mainly in keeping alive an interest in the subject. But, gentlemen, we must remember that with the majority of men, a large majority, 'Seeing is believing.' I believe, therefore, that this Commission should use its

influence in urging legislation by municipalities, and state and national legislatures for the spread and support of this demonstration work. Great care must be exercised, however, to select only such animals as will amply show forth the ravages of the disease. The great progress we have made in legislation in Wisconsin, and in securing a wide-spread acquiescence in the use of the tuberculin test, would never have come had it not been for a large number of public demonstrations held in various parts of the state.

We have gone as far as this in legislation: that after December 1, 1910, all animals sold for breeding or milking purposes, must first be tuberculin tested. This, I believe, is a step farther in advance than has been taken by any other state. It shows well the tone and temper of our farmers and the work which has been done to acquaint them with a true understanding of the situation. It is needless for me to say that if they are for the law, or any law, it goes; if they are against it, it is at best a dead letter. It is worth a great deal in the promotion of such objects, to have a live stock sanitary board in a state that will take hold and lead in this work. In too many instances these organizations are purely negative in their influence, and so nothing is done. There is a notable lack of funds to bear the expense of demonstration work. The farmers everywhere would willingly be taxed for its support. Municipalities could well afford to have such expense for the sake of the education it would afford to consumers of meat and dairy products.

In conclusion, I would urge upon this Commission that special emphasis be placed upon the promotion of public exhibitions of diseased cattle before and after slaughter as the most powerful means of education concerning the nature and danger of bovine tuberculosis.

(Signed) W. D. HOARD.

APPENDIX B.

REPORT OF COMMITTEE ON LOCATION OF TUBERCULOSIS IN CATTLE.

Your committee on the location of tuberculosis in cattle desires to submit the following as its report upon this subject:—

Though we are all agreed that no method for detecting tuberculosis in cattle equals the tuberculin test, we are forced to recognize that the universal application of the test under existing conditions is practically and economically impossible. The number of cattle to be tested, for example, is so great that, if all the available veterinarians and all such other persons as may be trusted to make tuberculin tests should be started on this work at once, and kept at it, years would pass before all the cattle in the United States and Canada could be tested even a single time. Consequently, our efforts to locate tuberculosis among cattle should depend primarily upon other means than the tuberculin test.

The tuberculin test should be regarded as having only an incidental value in the systematic work of locating tuberculosis, and as being of pre-eminent importance when we undertake the determination of the extent to which the disease is prevalent at any point in any herd where it has been located by other means or, incidentally by the tuberculin test.

In the order of seeming importance the means of location may be placed as follows:—

I.—NOTIFICATION.

A law should be enacted requiring any and every person having knowledge of the existence of a case of tuberculosis among cattle to report the same without delay

to some proper, designated authority. Such a law would be practically equivalent to the obligatory reporting of all clinical cases of tuberculosis which must be recognized as the most serious disseminators of tubercle bacilli and propagators of tuberculosis.

Since all cases of tuberculosis that are centres from which infection is being scattered, gradually become clinically recognizable, obligatory notification of all recognized cases of tuberculosis would alone in the course of a few years locate the majority of, if not all, badly diseased herds. It would certainly locate tuberculous cattle and herds faster than they can be handled for some years to come.

II.—EVIDENCE THROUGH MEAT INSPECTION.

An effort should be made to trace tuberculous animals back from slaughter houses to the farms from which they are derived. This is important because if the well-conditioned animals which go to slaughter for meat are tuberculous, it is probable that among the animals retained on the farm some active disseminators of tubercle bacilli exist, which are retained at the farm either through ignorance or a false idea of economy.

Meat inspection has already done much to establish infected areas from which tuberculous animals have been sent to market. At present, however, it is difficult to trace animals to the farms from which they were shipped, and some method of identification by means of which any animal, found on the killing floor to be tuberculous, can be traced to its place of origin is greatly to be desired. A federal law requiring appropriate tagging, branding or otherwise identifying all hogs and dairy cattle moving interstate for slaughter and state laws compelling similar identity marks for these animals moving within the state for slaughter, would be the means of locating a large proportion of the centres of tuberculosis. Experimental work of this character which has been carried out in the past has given very interesting results. For instance, when the occurrence of tuberculosis amongst hogs at an abattoir is followed up by a tuberculin test of the cattle on the home farm it practically always discloses tuberculosis among these animals. Like much other evidence, this encourages us to believe that tuberculosis among hogs will cease to exist as an economically important problem as soon as we succeed in controlling the bovine source of tubercle bacilli.

III.—THE TUBERCULIN TEST.

When the tuberculin test is applied to cattle for any purpose it should be clearly understood that the reacting animals are to be regarded in every sense of the word as recognized cases of tuberculosis, which, under an obligatory notification law, must be reported at once to the proper authority. In this way tuberculin will serve as an important means of locating tuberculosis among cattle that are tested for reasons like the following:—

(1) To obtain healthy animals for export.

(2) To make sure that animals imported are free from tuberculosis.

(3) To make sure that animals intended for interstate movement are free from tuberculosis. And here we would like to suggest that the states should protect themselves as much as possible against bovine tuberculosis by insisting that no new cattle shall be brought in until they have been shown by the tuberculin test to be free from tuberculosis. The time, we may hope, is not far off when even breeders of exceptionally fine strains of blood will begin to realize that the very best blood coupled with tuberculous infection is an article to be shunned, not because we wish to imply that tuberculosis is hereditary, but because we know how readily it is conveyed from animal to animal by contact.

(4) To obtain milk from animals shown in the most conclusive manner to be free from tuberculosis, irrespective of whether the milk is intended for special certification or for more general or regular city use.

(5) To satisfy an owner of cattle that his herd is free from tuberculosis or to give him the information he needs to clean his herd from disease.

In whatever way the tuberculin test is applied, or for whatever purpose, all positive reactions obtained should be regarded as placing the reacting animal in the category of recognized cases of tuberculosis, which must be reported under a notification law.

As the newer methods of applying tuberculin for test purposes have not been found to be as reliable as the older, subcutaneous method, they cannot be advocated. The ophthalmic and cutaneous tuberculin tests may have a value in some special cases, as for example, where doubt exists about the reliability of a subcutaneous test because an animal may have been subjected to some pernicious manipulation. In this sense, these later modes of applying tuberculin should be kept in mind.

IV.—EXAMINATION OF MATERIAL FROM CATTLE AND HERDS.

The valuable evidence that may be obtained as to the location of tuberculosis through the examination of milk, cream, butter, centrifuge slime and other products and materials from cattle should not be neglected, especially when these examinations are made by health officers and others for the protection of public health, and are followed up by the inspection of the animals and the character of their environment as a routine procedure. Such inspections are constantly becoming more prevalent in various sections of the United States and Canada.

V.—MOST IMPORTANT SOURCES OF ANIMAL TUBERCULOSIS.

Tuberculosis as it exists among the domestic animals of America to-day, undoubtedly owes its primary introduction to the cattle of improved breeding that have been imported from European lands from time to time in the past, for the purpose of improving the native stock of the country. No particular breed is to be incriminated in this charge, as several of the most prominent and popular breeds have been found guilty of furnishing tuberculous individuals to the best American herds on repeated occasions. The knowledge that infection has taken place from these sources in the past affords us a valuable indicator of the points where search should be made in our efforts to detect the cases of tuberculosis that exist to-day upon the farms of the country. First of all, then, attention may be directed towards all herds of pure bred cattle whether of beef or dairy type, especially those from which cattle are sold either by private or public sale, and from which cattle are thus distributed to various parts of the country; also to herds from which members are exhibited at fairs and exhibitions; and herds which keep males for custom service.

In addition to these herds of pure cattle, there are many others to which wellbred stock has been added for the purpose of grading up and improving the quality of the individuals of the herd. These in some instances have received the infection of tuberculosis with the new animals from which such great benefits had been expected, and these herds of well graded cattle should also be regarded with suspicion until they have been proved to be free of tuberculosis. Next in order should come all dairy cattle, but the methods by which the disease may be located in these herds have been discussed above.

(Sgd.) JOHN R. MOHLER, *Chairman.*
J. W. FLAVELLE,
C. A. HODGETTS.

SESSIONAL PAPER No. 15c

APPENDIX C.

REPORT OF COMMITTEE ON DISSEMINATION OF BOVINE TUBERCULOSIS.

The sub-committee on the dissemination of bovine tuberculosis respectfully submits the appended report on the means for the dissemination of this disease, based on the present knowledge of the life history of the tubercle bacillus. The possible means for the dissemination of this disease are enumerated as follows:—

1. The introduction into a sound herd of an animal or animals affected with tuberculosis: (*a*) those with open tuberculosis; (*b*) those in which the disease is in a period of incubation and (*c*) those in which the lesions are temporarily arrested.

The last group will not transmit the infection speedily and possibly may never do so. The first group is certain to spread the virus.

2. By feeding calves, milk, whole or separated, buttermilk or whey, where the milk has come from tuberculous cows.

3. By bringing cattle suffering from open tuberculosis in contact with healthy ones at fairs, cattle shows and other exhibitions.

4. By shipping healthy cattle in cars not thoroughly disinfected, recently occupied by tuberculous cattle.

5. By placing healthy cattle in stables that have not been thoroughly disinfected and which were recently occupied by tuberculous animals, as frequently happens with the change of farm ownership or tenants.

6. Tuberculous animals which do not react to tuberculin, such as those in the period of incubation or latent cases, but which develop active tuberculosis later, are frequently carriers of the virus although bought and sold as sound animals. These can not at present be differentiated from sound animals. Therefore all cattle coming from herds in which the disease exists should be considered as suspicious. The sound herd is the unit to deal with.

7. Tubercle bacilli may be transmitted by tuberculous cattle running in a pasture, to healthy cattle in adjoining pastures where they are separated by a fence of such nature that the cattle may get their noses together.

8. Tuberculosis in cattle rarely, if ever, occurs through infection from (*a*) man, either directly or as a carrier of bovine tubercle bacilli; (*b*) from other species of animals, or (*c*) by infection from the droppings of crows, buzzards or other birds or carnivorous animals that have fed upon the carcases of tuberculous cattle. It is the opinion of this committee that bovine tuberculosis is spread largely through the introduction of tuberculous cattle into sound herds; by the feeding of calves with infected milk, or milk products; by exposing sound animals to infected ones at fairs, or other cattle shows; and by exposing them to infected cars and stables. There are other ways in which now and then it is possible that an animal may become infected but the means of dissemination mentioned in this paragraph are those to be guarded against in formulating efficient methods of control.

(Sgd.) V. A. Moore, *Chairman.*
E. C. Schroeder,
M. P. Ravenel.

APPENDIX D.

REPORT OF COMMITTEE ON DISPOSITION OF TUBERCULOUS ANIMALS.

Your committee on the Disposition of Tuberculous Animals begs to submit the following report:—

In the work of control and eradication of tuberculosis in animals it is first of all of the utmost importance to establish the presence of the disease in all the affected cattle, since only by such a procedure will it be possible to guard the healthy and newly born animals from infection.

Fortunately, we are in a position to determine with considerable certainty the vast majority of occult cases of tuberculosis in cattle, even the incipient cases, with the aid of tuberculin, and the clinical cases by physical examination. This alone constitutes a great advantage in the work of suppression of the disease. The tuberculin test should therefore be considered as a very important step in the eradication of tuberculosis.. As a matter of fact, all the recognized authorities on the subject are agreed on this point. Once the tuberculous animals are recognized, consideration must be given to the most suitable and economical way of eradicating the disease from the herd. This naturally brings up the question of the disposition of the tuberculous animals, and in adopting any particular method one should be guided by the extent of the infection in the herd, the quality of the affected animals, the sanitary condition of the premises, and last but not least, the owner's intelligence and knowledge of the subject. The latter information is necessary to determine if reliance can be placed on the owner to carry out minutely all the details which are essential in executing any particular method of eradication that may be decided upon. The owner's co-operation in this work is without doubt a very essential feature of this great task. For this reason a campaign of education of the farmers and stock raisers relative to the control of tuberculosis in which all the advantages of the eradication of tuberculosis must be impressed on them, would greatly facilitate this important campaign. It is a well known fact that any voluntary method of suppression by the herd owners themselves would bring about better and quicker results than when compulsory measures are enforced upon them by legislative enactments. Nevertheless the time has arrived when a campaign looking towards the control of this disease should be entered upon by the general government as well as the state and province. This campaign must reach in the first place all the clinical pulmonary forms of tuberculosis; then tuberculosis of the udder, intestines and uterus.

Having removed these exceedingly dangerous cases the balance of the tuberculous herd may be treated by the Bang system, which consists of the establishment of two herds of cattle, one containing the animals which react to tuberculin, and the other those that proved to be healthy. Each class of cattle is kept entirely separate from the other, in different stables when possible, and under the care of separate attendants, using separate utensils. The calves born of the diseased cows are removed from their mothers at birth and placed in the stable with the healthy animals where they are reared upon the milk of healthy cows or upon other milk which has been properly pasteurized. In this way the healthy portion of the herd constantly increases, while the diseased animals are disposed of as rapidly as may be deemed necessary, until finally all of them are gone and the remaining herd is composed

entirely of healthy cattle. The tuberculin test is applied to the healthy herd at regular intervals, annually or semi-annually, in order to detect any cases of latent tuberculosis or recent infection which may appear.

A modification of the Bang system is Ostertag's method of suppressing tuberculosis. This system demands only a clinical examination of the original herd with the elimination of all open cases of tuberculosis. The calves from the remaining cows are immediately removed and brought up on pasteurized milk in the same manner as in the Bang system and a new herd is thus established from the young stock. Healthy nurse cows could be used for these calves instead of feeding them on pasteurized milk. The tuberculin test is applied to this new herd at stated intervals in order that any cases of tuberculosis which may develop therein may be discovered promptly. Neither of these systems, however, has met with much favour in this country, as it required a considerable length of time and care to create a herd free from tuberculosis by either of them. Nevertheless the inauguration of Bang's or Ostertag's method in herds of valuable animals, whether they be dairy or beef breeds, is unquestionably of an economic value, and in such cases either of these systems should be encouraged. On the other hand, in ordinary beef or dairy herds, the practice of Bang's or Ostertag's method in this country has not met with much encouragement, owing to the extraordinary supervision, time and labour, as well as the loss of market milk from the reacting cows, which it involves.

In such herds the best ultimate results have thus far been obtained by the obligatory disposal of all the clinically affected cows and giving the dairyman the alternative either to pasteurize the milk from the remainder of his herd, or to be forced to refrain from selling the raw milk from the infected herd at all. In case he adopts the former method, the herd composed of diseased and healthy cattle should be placed in quarantine under the supervision of sanitary authorities, and no sales should be permitted from the herd excepting for immediate slaughter. The alternative method will compel him to dispose of his tuberculous animals in case he refuses to pasteurize the milk. The suppression of tuberculosis could be greatly facilitated and the co-operation of many of the herd owners could be gained by a provision by which a certain percentage of indemnity could at least for a term of years be paid for the condemned animals. The scale for such an indemnity should be arranged in accordance with the final disposition of the carcass under competent inspection.

Another method of eradication should receive serious consideration as being of value in some localities. This is known as the Manchester system which is either the Ostertag or Bang system applied to localized areas or even individual farms, from which centres the work progresses to surrounding or neighbouring districts and farms. Inasmuch as the animals affected with clinical tuberculosis are the greatest sources of danger in the dissemination of the disease, compulsory reporting of such cases should be inaugurated by the state, as is now done in many places in the control of human tuberculosis. Mandatory reporting of these cases and their prompt slaughter are very essential, as only by the elimination of these exceptionally dangerous cases can it be hoped to take up all the other details by which a successful control of bovine tuberculosis may be accomplished.

In conclusion your committee, having regard to the disposition of pure-bred cattle, or valuable animals kept for either breeding or dairy purposes, would strongly recommend a system requiring the removal of all clinical tuberculous animals from the herd, the segregation of all calves from the remaining cows in order to establish a new, clean herd, the use of tuberculin tested nurse-cows or pasteurized milk for these calves, and the periodic application of tuberculin to this newly established herd, as the only thoroughly reliable one.

(Sgd.) W. C. Edwards, *Chairman.*
John R. Mohler,
Frederick Torrance.

APPENDIX E.

THE COMMISSION'S RECOMMENDATION ON ERADICATION—A COMPOSITE OF THE METHODS OF BANG AND OTHERS.

The Commission after stating the known facts regarding the nature of tuberculosis and enumerating the principles to be observed in its prevention and eradication, recommends the following plan of procedure. It is recognized that in several points there are opportunities, in order to meet individual needs, to change or modify the directions herein given. It is understood, however, that whenever such modifications are made they should conform in the greatest detail to the principles laid down in the report of this Commission. The plan has for its purpose the conservation of the herd whenever that is possible.

The control of bovine tuberculosis involves a definite procedure under two distinct and different conditions, namely: (1) where a herd of cattle is free from tuberculosis and it is to be kept so, and (2) where one or more animals in the herd are infected and the purpose is to eradicate the disease and establish a sound herd.

PROCEDURE UNDER CONDITION (1).

The prevention of tubercular infection in cattle, free from tuberculosis, consists simply in keeping tuberculous cattle or other animals away from the sound ones; in keeping tuberculous animals out of pastures, sheds or stables where the sound ones may be kept. Healthy cattle should not be exposed to possible infection at public sales or exhibitions. Raw milk or milk by-products from tuberculous cows should not be fed to calves, pigs or other animals. Cars that have not been thoroughly disinfected should not be used for the transportation of sound cattle. Cattle that are purchased to go into sound herds should be bought from healthy or sound herds only.

PROCEDURE UNDER CONDITION (2).

The eradication of tuberculosis from infected herds requires for conservation of the herd different procedures according to the extent of the infection. For a guide to the control of the disease tuberculous herds may be divided into three groups, namely:—

1. Where 50 per cent or more of the animals are infected.
2. Where a small percentage (15 per cent or less) of the animals are affected.
3. Where a large number (15 per cent to 50 per cent) of the animals are diseased.

In eliminating tuberculosis from infected herds the following procedure is recommended:—

GROUP 1.

Herds where a tuberculin test shows 50 per cent or more of the animals to be infected should be treated as entirely tuberculous. The procedure here is as follows:—

1. Eliminate by slaughter all animals giving evidence of the disease on physical examination.
2. Build up an entirely new herd from the offspring. The calves should be separated from their dams immediately after birth and raised on pasteurized milk or on that of healthy nurse-cows. This new herd must be kept separate from any reacting animals.

3. The young animals should be tested with tuberculin at about six months old, and when reactors are found at the first or any subsequent test—the others should be retested not more than six months later. When there are no more reactors at the six months test, annual test should thereafter be made. All reacting animals should at once be separated from the new herd and the stables which they have occupied thoroughly disinfected.

4. When the newly developed sound herd has become of sufficient size, the tuberculous herd can be eliminated by slaughter, under inspection, for beef.

GROUP II.

1. The reacting animals should be separated from the non-reacting ones and kept constantly apart from them at pasture, in yard and in stable.

(*a*) *Pasture.*—The reactors should be kept in a separate pasture. This pasture should be some distance from the other or so fenced that it will be impossible for the infected and non-infected animals to get their heads together.

(*b*) *Water.*—When possible to provide otherwise, reacting cattle should not be watered at running streams which afterwards flow directly through fields occupied by sound cattle. The water from a drinking trough used by infected animals should not be allowed to flow into stables, fields or yards occupied by sound animals.

(*c*) *Stable.*—Reacting cattle should be kept in barns or stables entirely separate from the ones occupied by the sound animals.

2. Calves of the reacting cows should be removed from their dams immediately after birth. Milk fed these calves must be from healthy cows; otherwise, it must be properly pasteurized. These calves should not come in contact in any way with the reacting animals.

3. The non-reacting animals should be tested with tuberculin in six months, and when reactors are found at the first six months, or any subsequent test, the others should be retested not more than six months later. When there are no more reactors at the six months' test, annual tests should thereafter be made. All reacting animals should at once be separated from the new herd and the stables which they have occupied thoroughly disinfected.

4. The milk of the reacting animals may be pasteurized and used.

5. Any reacting animal which develops clinical symptoms of tuberculosis should be promptly slaughtered.

6. An animal that has once reacted to tuberculin should under no circumstances be placed in the sound herd.

7. As soon as the sound herd has become well established, infected animals should be slaughtered, under proper inspection.

GROUP III.

Herds that come within this group should be dealt with either as in Group II. where the herd is separated, or as in Group I. where all of the animals are considered as suspicious and an entirely new herd developed from the offspring.

GENERAL PRECAUTIONS.

In all cases, animals that show clinical evidence of the disease should be promptly eliminated. They should be destroyed if the disease is evidently far advanced; if not, they may be slaughtered for food under proper inspection.

All milk from tuberculous cows that is used for food purposes should be thoroughly pasteurized. This means that it must be heated sufficiently to kill or to render harmless, any tubercle bacilli that may be present in it. For this, it is necessary to heat the milk for twenty minutes at 149° F., or for five minutes at 176°

F. It is important that pails or other utensils used in carrying the unpasteurized milk should not be used, unless previously sterilized, for storing the milk after it is pasteurized.

When diseased animals are found, the stables from which they are taken should be thoroughly cleansed and disinfected. To accomplish this, all litter should be removed; floors, walls and ceilings carefully swept and the floors, together with mangers and gutters, thoroughly scrubbed with soap and water. Thorough cleansing before the application of the disinfectant cannot be too strongly emphasized. After cleansing, the disinfectant should be applied. A five per cent (5 p.c.) solution of carbolic acid, a 1-1000 solution of corrosive sublimate, or a four per cent (4 p.c.) solution of sulphuric acid may be used.

When the stable can be tightly closed, formaldehyde gas properly used is reliable and satisfactory.

If tuberculous cattle have been kept in a small yard, the litter should be removed, the surface ploughed and the fencing and other fixtures thoroughly cleansed and disinfected.

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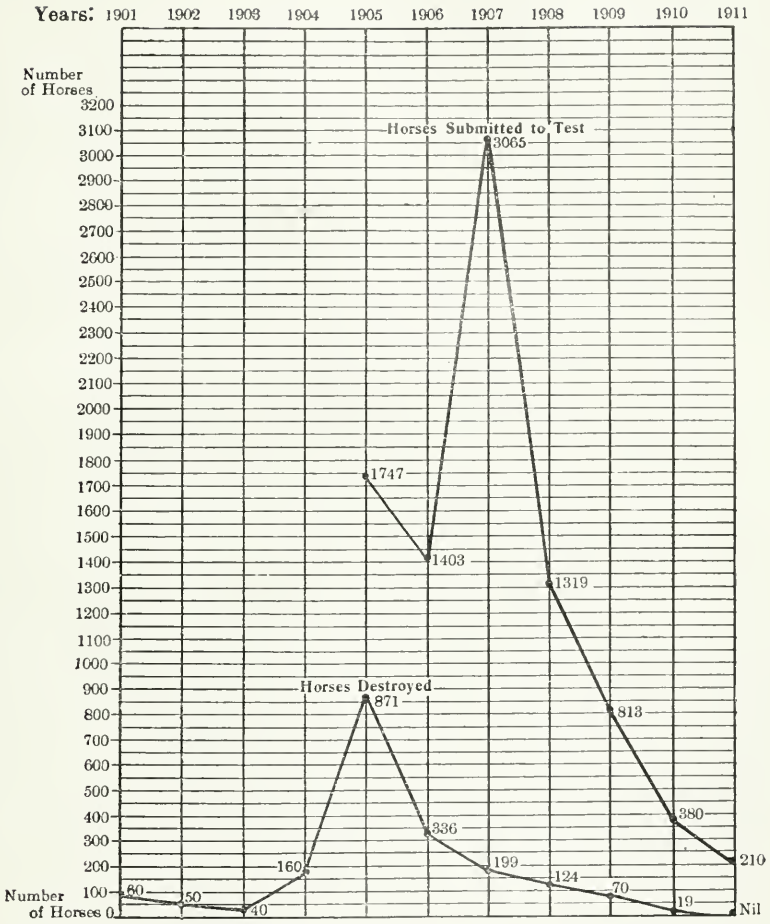


FIG. 1.—Number of horses submitted to the mallein test and destroyed for glanders, in the province of Manitoba during the years 1901 to 1911.

During years 1901 to 1904 only clinical cases were destroyed; No records available of number of horses tested.

During year 1905, of the 871 horses destroyed, 365 were clininal cases.

"	1906	"	336	"	173	"
"	1907	"	199	"	99	"
"	1908	"	124	"	53	"
"	1909	"	70	"	29	"
"	1910	"	19	"	9	"

—Appendix No. IV.

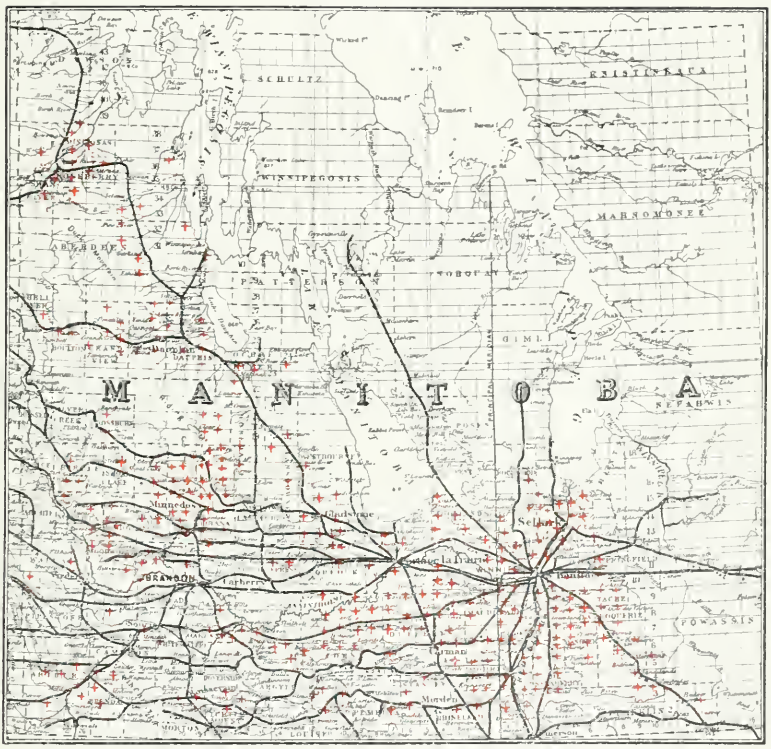


Fig. 11.—Glanders outbreaks Manitoba 1905.—Appendix No. IV.

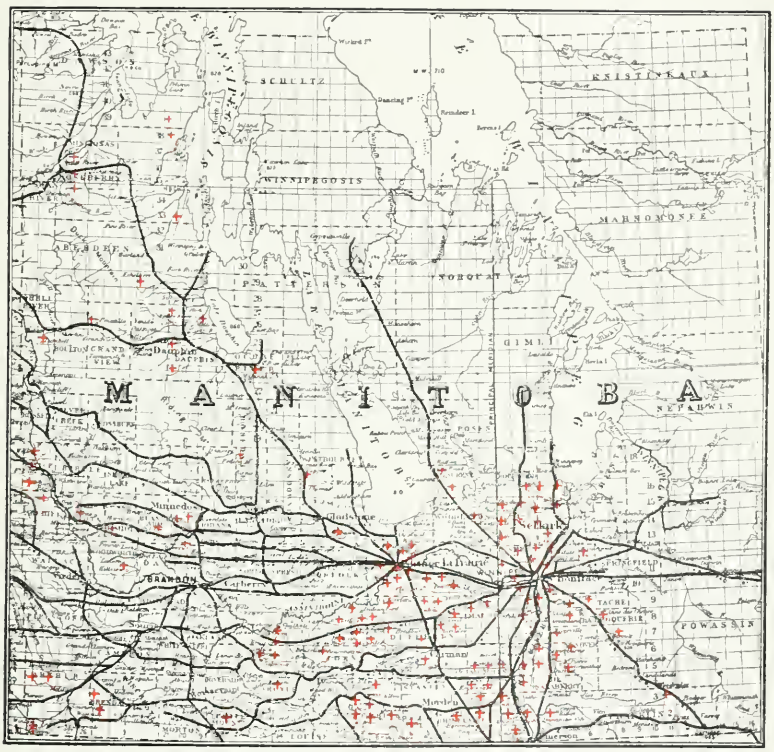


FIG. III.—Glanders outbreaks Manitoba 1906.—Appendix No. IV.

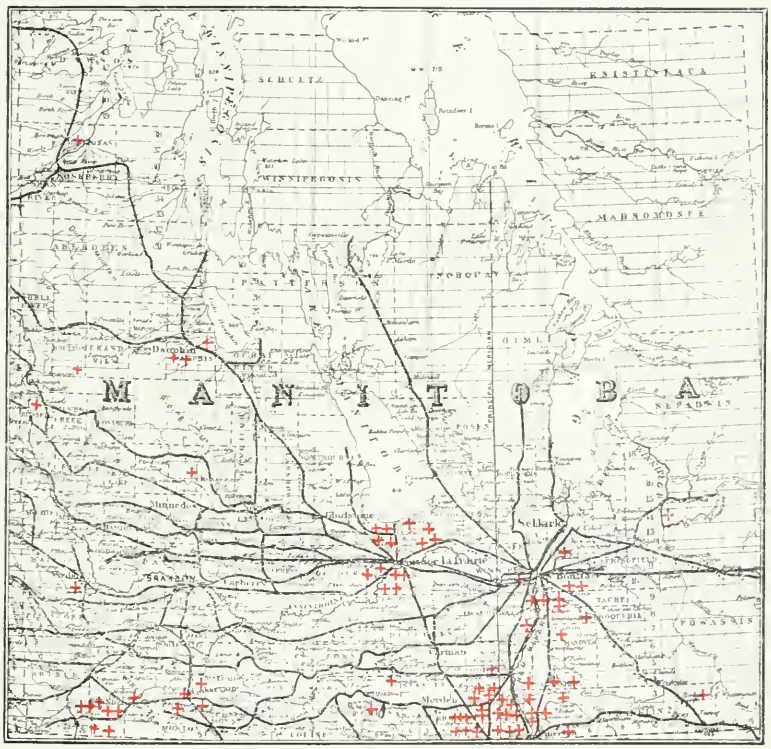


Fig. iv. Glanders outbreaks Manitoba 1907.—Appendix No. IV.

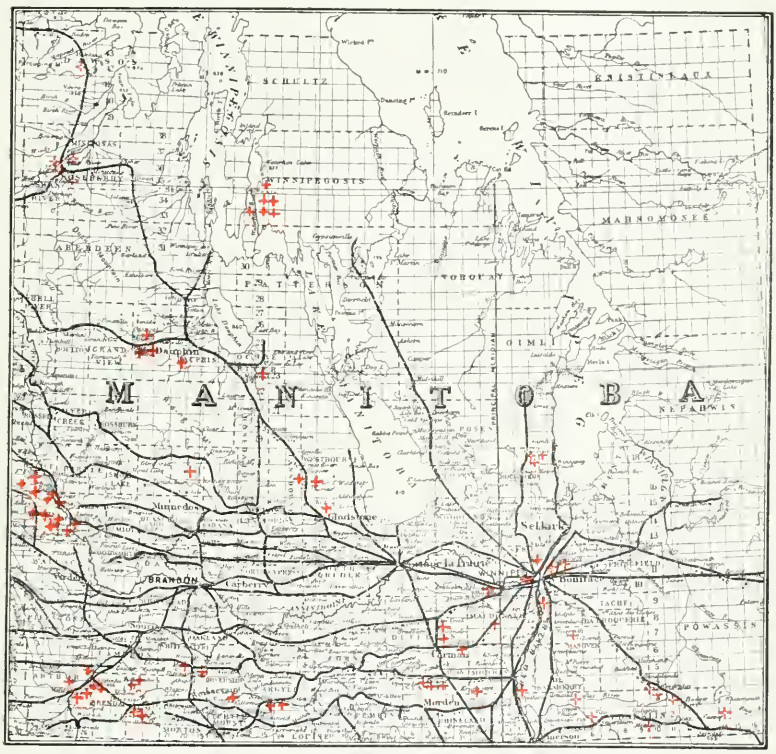


Fig. v.—Glanders outbreaks Manitoba 1908.—Appendix No. IV.

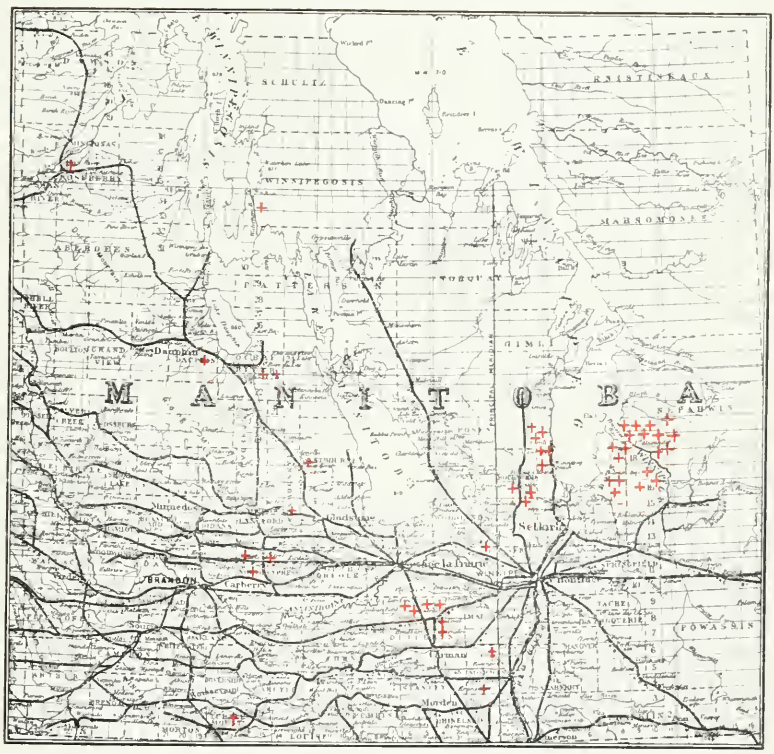


Fig. vi.—Glanders outbreaks Manitoba 1909.—Appendix No. IV.

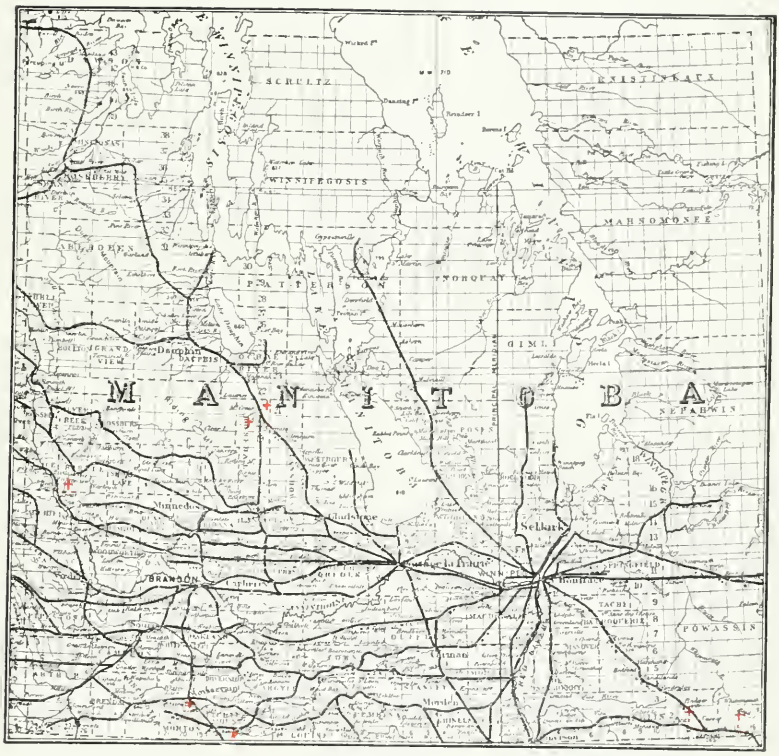
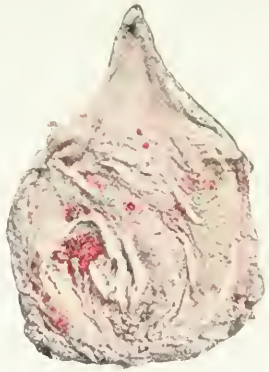


Fig. vii.– Glanders outbreaks Manitoba 1910.—Appendix IV.

Fig. V.

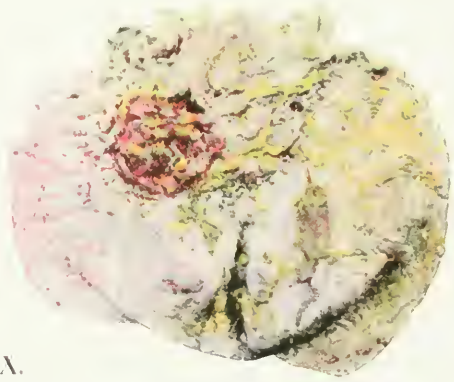
Fig. VI.

I.



II.

III.



IV.

APPENDIX No. IX.

Red Water Investigations in British Columbia.